

601  
48

# JOURNAL

OF THE



ar Conference  
Program

St. Louis  
Aug. 25-26, 1943

**THERE**  

**IS WHERE A WAR MUST BE WON —**

a war against diseases of livestock, the source of rations for the armed forces and their civilian background, and

a war against shortage which the veterinary profession can prevent if not molested in its work, despite the unfavorable conditions facing it and the livestock producers.

For Veterinarians, the drive for more animals is a trial of endurance and skill and a call to duty.

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## THE BACTERICIDAL ACTIVITY OF MERCURIC CHLORIDE AND SEVERAL ORGANIC MERCURIALS\*

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MICROORGANISM	PHENYL-MERCURIC NITRATE	MERTHIOLATE	METAPHEN	MERCURO-CHROME	MERCURIC CHLORIDE
Staph. Aureus .....	1:192,000	1:120,000	1:140,000	1:160	1:16,000
Str. hemolyticus .....	1:144,000	1:112,000	1:110,000	1:320	1:32,000
Pneum. type I.....	1:96,000	1:64,000	1:72,000	1:240	1:20,000
E. coli .....	1:48,000	1:32,000	1:32,000	1:180	1:10,000
Gonococcus .....	1:80,000	1:48,000	1:48,000	1:240	1:20,000
B. subtilis .....	1:65,000	1:24,000	1:36,000	1:300	1:12,000

\*Pharmacological Basis of Therapeutics, 1941, Goodman and Gilman, p. 856.

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# Journal of the American Veterinary Medical Association

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# WHAT THE VETERINARY PROFESSION MEANS TO MANKIND



## Keep 'Em Healthy!

Asserting that "Keep 'Em Healthy" as applied to livestock is as vital to winning the war as "Keep 'Em Flying," the Department of Agriculture's 1942 Year Book states:

"Few persons not engaged in the livestock business realize the number, variety, and seriousness of the diseases and parasites that attack domestic animals or the care and skill necessary to keep them healthy \* \* \* Few except those acquainted with public health problems realize how closely many animal diseases

are associated with similar or identical diseases in human beings.

"There is some satisfaction in knowing that the United States is widely regarded as the safest country in the world in which to conduct stock raising. We have a well-developed veterinary service, and with the protection of quarantines and other safeguards, the United States is free from several animal diseases that cause great losses abroad."

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# Journal of the American Veterinary Medical Association

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600 S. Michigan Ave., Chicago, Ill.

VOL. CIII

AUGUST 1943

NO. 797

## The War Conference: A Message from President Dimock

When the United States became one of the United Nations in the present war, the veterinary profession was immediately implicated in the plans instituted to increase the supply of animal-food products and other commodities of animal origin. Simultaneously, the owners of livestock became more concerned about the health of their animals. Even isolated and sporadic sickness and deaths, formerly of little importance, attracted more general attention. From the smallest consumer to the largest producer, sharp rises in the price of food-producing animals have always aroused interest in the production and development of these animals. Moreover, in the sincere effort to increase the nation's food resources, producers desire to maintain health, promote rapid gains, and prevent losses, independent of the opportunity to increase profits. There are both altruistic and commercial reasons why diseases of farm animals concern all of us.

The part played by members of the vet-

erinary profession in curtailing losses from preventable diseases is nationally recognized in the demand for our services. There

was no actual surplus of veterinarians in the United States before the war. There may have been more veterinarians than were actually necessary in certain isolated places, yet *per contra* there have been large areas where veterinary service was inadequate or nonexistent. It was expected, and, in addition was our wish, that the Army of the United States should have first call on our personnel. From the standpoint of age, physical and professional fitness, and suitability for



W. W. Dimock, President, 1942-43

service in the Veterinary Corps, the Army was to have first choice among our members. This is as you and I want it, and as it should be. There being no surplus of veterinarians to start with and since a sizable number was commissioned as veterinary officers, one need not resort to higher mathematics to figure out the problems before us and arrive at

the right answer. In fact, the need for veterinarians in civil life is so great that no eligible practitioner should be taken into the armed forces unless needed as an officer in the Veterinary Corps. Those inducted by Selective Service should either be commissioned by request of the Surgeon General or sent home with an honorable discharge to participate in the food-conservation program, either in the private or in the public service. The number of veterinarians in civil life is not sufficient to meet the demands of either service, whether private, federal, state, or commercial. I know, personally, a number of practitioners past 60 years who are working far beyond their physical capacity. Graduates of 1943 who entered private practice have met favorable conditions, and they too are working to the limit of their endurance. Both old and young are laboring as never before, and we are proud of what they are doing to help in the conservation of the livestock of our great country. When the war is over, I am sure we shall have just cause to declare that a good job was done regardless of the difficult and exhausting circumstances.

Under the tremendous increase in the production of livestock and poultry, the veterinary profession has reason to be gratified with its work. The goals set by the government were satisfactorily attained, animal health has not suffered as a consequence, and thanks to our traditional vigilance, no exotic plagues of animals have been imported regardless of the great interchange of men and material between far-away places and the homeland. The regulatory service has been alert, research has continued and expanded, and the practitioners have served as sturdy patrols of the veterinary frontier. But what is still more gratifying is the fact that the government, the stockmen and farmers and the poultry industry have become more and more veterinary-conscious, recognizing that the systematic control of animal diseases is a national necessity. There must be no relaxation in our vigilance nor any decrease in our organized efforts.

The AVMA will meet in St. Louis on August 25 and 26 to transact official business. The reports and papers to be presented will deal strictly with wartime problems. I am sure the public is directly interested in this meeting since a professional association of national scope functions, not only for the individual or collective interests of its members, but more particularly, to augment the knowledge and discipline the nation requires when overtaken by emergencies. While the primary purpose of the veterinary profession is to serve the livestock industry, that is but the means to the more important end of serving the entire population.

A national organization is considered essential to the aims of professional and scientific groups. "Organized veterinary medicine," a term now often used, is represented nationally by the AVMA which studies and acts upon problems and activities requiring group solidarity. But, it should be remembered that the Association is dependent upon the support of the individual members, acting directly or through the executive officers to whom leadership has been entrusted through strictly democratic elections.

While in most respects the Association is better today than ever before, and every veterinarian is working to the limit of his capacity, we must nevertheless plan for the future, not alone by adding to the number of members but also by increasing our leadership, usefulness, and the part we have to play in unraveling the confusion of the world in which we live. It is mainly during an emergency that the people come to realize how directly the work of one trained group contributes to the effectiveness of other groups and these to the consumer, meaning all of the human population. The present international situation calls for united effort among American veterinarians. What peace achieves, war must not be permitted to destroy.

Sincerely,

(Signed) W. W. DIMOCK, *President*



# War Conference

Aug. 25-26, 1943

St. Louis

## *Organization of the Committee on Local Arrangements*

*General Chairman:* S. W. HAIGLER, St. Louis.

*Vice-General Chairman:* A. E. BOTT, East St. Louis, Ill.

*General Secretary:* WM. E. IRWIN, Webster Groves.

*Committee on Public Relations:* A. E. BOTT, East St. Louis, Ill.,  
*Chairman;* J. L. Wells, C. C. Hastings.

*Committee on Hotels:* J. P. TORREY, East St. Louis, Ill., *Chairman;*  
G. R. Killian, L. C. Stewart.

*Committee on Dinners and Luncheons:* C. L. CAMPBELL, St. Louis,  
*Chairman;* Wm. E. Beckmann, L. E. Bodenweiser.

### *Other Committees:*

*Army*—Major J. L. Davidson, Scott Field, Ill., *Chairman;* Major  
A. C. Jerstad, Captain Carl C. Tucker.



COMMITTEE ON LOCAL ARRANGEMENTS—ST. LOUIS MEETING

Seated—left to right: D. F. Luckey; A. E. Bott, Vice-General Chairman and Chairman, Public Relations; S. W. Haigler, General Chairman; AVMA President W. W. Dimock; Wm. E. Irwin, General Secretary; L. E. Bodenweiser. Standing—left to right: Maj. J. L. Davidson, Chairman, Army; C. L. Campbell, Chairman, Dinners and Luncheons; J. P. Torrey, Chairman, Hotels; O. W. Seher, Chairman, BAI, Meat and Milk Inspection; L. C. Stewart; G. R. Killian; Wm. E. Beckmann; C. F. W. Bauer.

*B.A.I., Meat and Milk Inspection*—O. W. Seher, St. Louis, *Chairman*; M. R. Fisher, E. C. Hughes.

*Practitioners*—Geo. W. Leber, Pacific, *Chairman*; C. F. W. Bauer, C. E. Dille.

*State Veterinarians*—J. W. George, Jefferson City, *Chairman*; C. E. Fidler, D. F. Luckey.

*University and Extension*—A. J. Durant, Columbia, *Chairman*; Robert Graham, A. W. Uren.

*Women*—Mrs. A. E. Bott, East St. Louis, Ill., *Chairman*; and the wives of all local members.

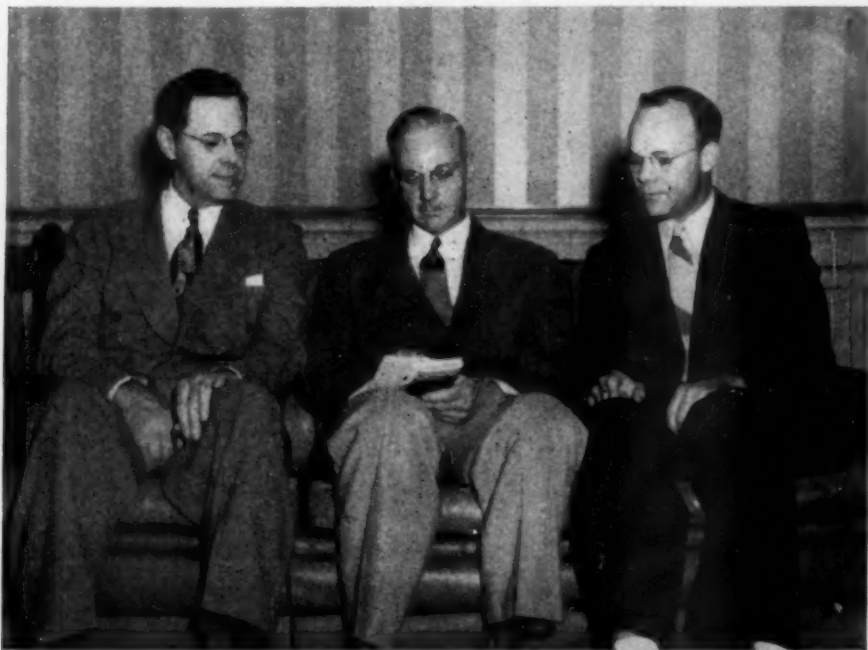
### **Condensed Program**

*Monday, August 23.* 10:00 a.m.: Meeting of the Board of Governors. 2:00 p.m.: Board of Governors.

*Tuesday, August 24.* 9:00 a.m.: Executive Board session; committee meetings. 2:00 p.m.: Registration; Executive Board session; committee meetings. 8:00 p.m.: *See* Subsidiary and Associated Meetings.

*Wednesday, August 25.* 9:00 p.m.: Registration; House of Representatives, first session. 1:30 p.m.: Opening Session. 4:00 p.m.: Nomination of officers. 6:30 p.m.: Dinner: general session. 8:30 p.m.: House of Representatives, second session, if necessary.

*Thursday, August 26.* 9:00 a.m.: General Session. (Election polls open if necessary.) 10:30 a.m.: Women's Auxiliary, breakfast session followed by annual business meeting. 2:00 p.m.: General Session. (Final session of House of Representatives, if necessary.) Adjournment.



OFFICERS—LOCAL COMMITTEE ON ARRANGEMENTS—ST. LOUIS MEETING  
Left to right: A. E. Bott, Vice-General Chairman; S. W. Haigler, General Chairman;  
Wm. E. Irwin, General Secretary.

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## *Program*

WEDNESDAY MORNING, AUGUST 25—9:00 A.M.

House of Representatives, first session—Open to all members of the Association.

### *Opening Session*

WEDNESDAY AFTERNOON, AUGUST 25—1:30 P.M.

Call to order.

Invocation: Rev. Frank E. Harris, First Methodist Church, East St. Louis, Ill.

The Star Spangled Banner.

Address of Welcome: Dr. Joseph F. Bredeck, Health Commissioner of St. Louis.

Response: B. T. Simms, *Director*, U. S. Regional Animal Disease Research Laboratory, Auburn, Ala.

Greetings from the Women's Auxiliary—Mrs. J. C. Schoenlaub, *President*, Memphis, Tenn.

Address of the President.

Presentations by O. V. Brumley, *Chairman*, Executive Board:

Service Scroll to President W. W. Dimock.

Gold Key to President-Elect Charles W. Bower.

Twelfth International Veterinary Congress Prize.

Message from the American Red Cross.

4:00 p.m.—Nomination of Officers.

### *Evening Session*

WEDNESDAY EVENING, AUGUST 25

6:30 p.m.—Dinner.

8:00 p.m.: General Session.

Topics and speakers to be announced.

### *General Session*

THURSDAY MORNING, AUGUST 26—9:00 A.M.

1) The Army Veterinary Service—Brig. General R. A. Kelser, Veterinary Division, Surgeon General's Office, War Department, Washington, D. C.

2) War and Postwar Disease Control Problems—H. W. Schoening, *Assistant Chief*, Bureau of Animal Industry, Washington, D. C.

3) The Canadian Veterinary Service and Its Wartime Work—Lt. Col. A. E. Cameron, Royal Canadian Army, Ottawa, Ont.

4) The Veterinary Services of Our Allies—(speaker to be announced).

---

5) Prevention of Food Poisoning by Use of Newer Preservation Methods—L. B. Jensen, *Chief Bacteriologist*, Swift & Co., Chicago, Ill.

*General Session*

THURSDAY AFTERNOON, AUGUST 26—2:00 P.M.

- 1) Fighting Wastage of Our Food Resources by Organized Research—Robert F. Griggs, *Chairman*, Division of Biology and Agriculture, National Research Council, Washington, D. C.
  - 2) Veterinary Aid Essential to Poultry Conservation—Cliff D. Carpenter, *Executive Secretary*, National Poultry Advisory Council, Chicago, Ill.
  - 3) The Present Feed Situation as Related to Livestock Production—Frank E. Boling, *Vice-Chairman*, Feed Industry Council, Chicago.
  - 4) Veterinary Education in the Postwar World—W. A. Hagan, *Dean*, New York State Veterinary College, Cornell University, Ithaca, N. Y.
  - 5) Postwar Trends in Veterinary Practice and Research—George H. Hart, *Head*, Division of Animal Husbandry, University of California, Davis, Calif.
  - 6) Installation of Officers.
- Adjournment.



Mrs. A. E. Bott, Chairman, Women's Committee

*Women's Auxiliary*

WEDNESDAY, AUGUST 25

Morning—Registration.

1:30 p.m.—Attend Opening Session.

6:30 p.m.: Dinner.

THURSDAY MORNING,  
AUGUST 26

10:30 a.m.—Breakfast, followed by annual business meeting and program.  
Ivory Room.

*Subsidiary and Associated Meetings*

TUESDAY, AUGUST 24

2:00 p.m.—Committee on Animal Health of the National Research Council, George H. Hart, *Chairman*. (Members of



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Inter-Association Council on Animal Disease and Production also requested to attend.)

3:00 p.m.—Extension Service Veterinarians, B. J. Killham, *Chairman*.

8:00 p.m.—Missouri State Veterinary Medical Association, H. W. Young, *President*—Business Session only.

8:00 p.m.—National Association of Federal Veterinarians, O. W. Seher, *President*.

8:00 p.m.—National Assembly of Chief Livestock Sanitary Officials, Will J. Miller, *President*.

8:00 p.m.—Joint Committee on Foods, AVMA and AAHA.

#### WEDNESDAY, AUGUST 25

5:00 p.m.—AVMA Research Council, E. T. Hallman, *Chairman*.

#### THURSDAY, AUGUST 26

American Animal Hospital Association, J. B. Engle, *President*. Time and meeting room to be announced.

#### FRIDAY, AUGUST 27

American Animal Hospital Association. Time and meeting room to be announced.

Other meetings and conferences will be announced in the printed program or during the sessions.

### ***Hotel Accommodations and Rates***

The Hotel Jefferson is headquarters. A reasonable number of rooms in each price bracket are available to those making early reservations. The rates are as follows:

Singles: \$3.00-6.00 per day

Doubles: \$4.00-7.00 per day

Doubles, twin beds: \$5.00-8.00 per day

Two room Suites: \$12.00 and \$20.00.

Other hotels in the vicinity have rates as follows:

	<i>Single</i>	<i>Double</i>	<i>Suites</i>
Chase Hotel .....	\$3.00-5.00	\$5.00- 7.00	\$8.00-14.00
Claridge Hotel .....	2.50-3.50	4.00- 6.00	
Coronado Hotel .....	2.75-5.00	4.50- 8.00	7.00-11.00
DeSoto Hotel .....	2.65-5.00	4.00-10.00	10.00-12.00
Mark Twain Hotel .....	2.50-3.50	3.50- 5.50	
Mayfair Hotel .....	3.00-4.50	4.00- 8.00	10.50 and up
Lumox Hotel .....	3.00-5.50	4.00- 6.50	10.00 and up
Park Plaza Hotel .....	4.50-6.00	5.50-10.00	10.00-15.00
Roosevelt Hotel .....	2.50	4.00- 5.00	
Statler Hotel .....	2.75-5.00	4.50- 9.00	12.00

Reservations should be made early. If air-conditioned accommodations are desired, so specify.

# A Message to Every American from the President

THE WHITE HOUSE  
WASHINGTON

June 24, 1943

My dear Mr. Secretary:

Through you, as Secretary of the Treasury, I want to congratulate the American people on the way in which they have supported the voluntary payroll savings plan.

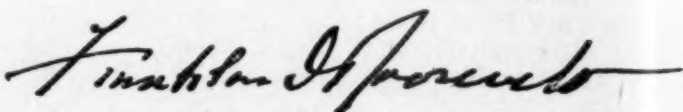
I am proud of the fact that 27,000,000 patriotic Americans are regularly investing more than \$420,000,000 a month to help pay the cost of the war. And since all of this money comes from wages and salaries — nearly 90 percent from people earning less than \$5,000, and the bulk of it from those working in war plants — I do not hesitate to say that the payroll savings plan is the greatest single factor we now have in protecting ourselves against inflationary spending.

This is a great record, both from the standpoint of curbing inflation and from the standpoint of financing the war. However, I heartily endorse your present drive to improve that record, and I agree it must be improved if we are to keep pace with the increasing demands of the war.

I therefore join you in calling upon the American people -- and upon labor and management particularly -- to do still more. Additional people should be convinced of the necessity of participating. Everyone now on the payroll savings plan should materially increase the amount of bonds he is buying. We originally asked for 10 percent, but now we need considerably more.

I hope every American on a payroll will figure out for himself the extent to which he can curtail his spending, and will put every dollar of additional saving thus made into the payroll savings plan.

Sincerely yours,



The Honorable,

The Secretary of the Treasury

# Recommendations on the Control of Diseases of Sheep

## Special Committee on Diseases of Sheep

SECRETARY of Agriculture Claude R. Wickard has set a national production goal of 990 million lb. of lamb and mutton for 1943. This will require the slaughter of 24.1 million sheep and lambs. Marketing and farm slaughter of this number of sheep and lambs in 1943 will cause a reduction in the number of sheep on farms and ranches by the end of the year. It is expected that this reduction will make for a better balance between labor resources, livestock numbers, forage, and other feed supplies, especially in the range states. It is hoped that this will facilitate a continued high level of lamb, mutton and wool production. Increased sheep and lamb feeding is recommended.

The large carry-over of wool and expected imports from the southern hemisphere appear to make unnecessary any special effort to increase wool production in 1943. Production of shorn wool in 1943 is estimated at 48.1 million fleeces. This should provide a supply of 380 million lb. of shorn wool. This shearing program can be carried out provided marketings and death losses do not reduce the number of sheep and lambs on farms and ranches below 55 million head. Although it does not appear advisable to undertake special wool production programs, however, it is desirable to produce as much wool as possible.

The average veterinarian has not given a great deal of attention to sheep. It is the opinion of this committee that a survey of the parasite and disease situation and general recommendations concerning prevention and control will be most useful at this time. Losses sustained by the meat-packing industry because of improper feeding, improper management (before or during shipping) and other causes merit consideration.

Certain fundamental facts in regard to diseases of sheep or any other farm animal are universal in application. However, it is necessary to consider all diseases in re-

lation to the environment. In the study of sheep diseases, the climatic variations between the northern states and the semitropical southern states, and between the humid East and the semiarid West are important factors. Just as important are the variations in management of the farm flock of 50 ewes and the range band of 1,000 to 50,000 ewes. It seems that work with sheep diseases involves primarily three main classes of sheep: (1) farm flocks (including purebred flocks); (2) range bands; and (3) lambs in feedlots. The breeding sheep of the eastern and central states and of a part of the west coast are in farm flocks. The breeding ewes of the area between the 100th meridian and the coast ranges of mountains are run in range bands, with limited areas in a few irrigated valleys where farm flocks are found. The feedlot lambs are found in general in the north central Mississippi Valley states, with concentrations in the sugar-beet areas of the western states.

### MAJOR CAUSES OF LOSSES (DEATH AND OTHERS)

#### Ia. Farm Flocks

##### a) Internal parasites

- 1) *Haemonchus contortus* (twisted stomach worm)
- 2) *Oesophagostomum columbianum* (nodular worm)
- 3) *Ostertagia* sp. (medium stomach worms)
- 4) *Bunostomum trigonocephalum* (hookworm)
- 5) *Trichostrongylus* sp. (small hairworms)
- 6) *Moniezia expansa* (tapeworm)
- 7) *Dictyocaulus filaria* (thread lungworm)
- 8) *Eimeria* sp. (coccidia)

##### b) Dietary disturbances

- 1) Insufficient quantity
- 2) Pregnancy disease (ketosis)
- 3) Vitamin deficiencies (A and D)
- 4) White muscle disease of lambs
- 5) Enteritis
- 6) Tympanites
- 7) Mineral deficiencies (Ca, P, I, Mg, Fe, Co)

##### c) Respiratory conditions

- 1) Housing
- 2) Shipping (protection)
- 3) Management

## d) Infectious diseases

- 1) Foot rot
- 2) Mastitis
- 3) Tetanus
- 4) Navel infection
- 5) Lamb dysentery
- 6) Listerellosis (circling disease)

## e) External parasites

- 1) *Melophagus ovinus* (sheep tick)
- 2) *Oestrus ovis* (sheep nasal fly)
- 3) Sheep-wool maggots
- 4) *Cochliomyia* sp. (screw-worm flies)
- 5) Scab mites
  - a) Psoroptes
  - b) Sarcoptes
  - c) Chorioptes
  - d) Demodex

## f) Poisoning and related conditions

- 1) Plant poisoning
  - a) *Conium maculatum* (poison hemlock)
  - b) *Prunus serotina* (wild black cherry)
  - c) *Cicuta maculata* (water hemlock)
  - d) *Datura stramonium* (jimson weed)
  - e) *Phytolacca decandra* (pokeroor)
  - f) *Asclepias* sp. (milkweeds)
- 2) Spray and dust materials (arsenic, lead)
- 3) "Cure-all" medicines and tonics
- 4) Biological products (improperly used)
- 5) Minerals

## Ib. Farm Flocks (in western valleys)

## a) Internal parasites

- 1) *Haemonchus contortus* (twisted stomach worm)
- 2) *Ostertagia* sp. (medium stomach worms)
- 3) *Trichostrongylus* sp. (small hairworms)
- 4) *Nematodirus* sp. (thread-necked strongyles)
- 5) *Dictyocaulus filaria* (thread lungworm)
- 6) *Fasciola hepatica* (common liver fluke)

## b) External parasites

- 1) *Melophagus ovinus* (sheep tick)
- 2) *Dermacentor* sp. (woodtick)
- 3) *Oestrus ovis* (sheep nasal fly)

## c) Infectious diseases

- 1) Navel infection
  - a) *Necrobacillosis* of liver
  - b) Arthritis
- 2) *Pasteurella pneumonia* (lambs)
- 3) Black disease
- 4) Vibrionic abortion
- 5) Enterotoxemia

## d) Diseases of nutritional origin

- 1) Pregnancy disease (ketosis)
- 2) Goiter
- 3) White muscle disease of lambs
- 4) Vitamin deficiencies (A and D)
- 5) Mineral deficiencies (?)

## II. Range Sheep

## A) Young Lambs

## a) Infectious diseases

- 1) Navel infection
- 2) Dysentery
- 3) *Necrobacillosis* of liver
- 4) Arthritis
- 5) Tetanus
- 6) Blackleg

## b) Diseases of nutritional origin

- 1) Goiter
- 2) Vitamin deficiencies (A and D)

## B) Lambs on Summer Range

## a) Infectious diseases

- 1) Contagious ecthyma
- 2) Arthritis
  - a) *Corynebacterium pyogenes*
  - b) *Erysipelothrix rhusiopathiae*
- 3) Foot rot

## b) Internal parasites

- 1) *Moniezia* sp. (tapeworm)
- 2) *Ostertagia* sp. (medium stomach worms)
- 3) *Trichostrongylus* sp. (small hairworms)
- 4) *Nematodirus* sp. (thread-necked strongyles)
- 5) *Haemonchus contortus* (twisted stomach worm)

## c) Poisonous plants (See Breeding Sheep (d))

## C) Breeding Sheep

## a) Internal parasites (clinical parasitism, not common in range sheep)

- 1) *Ostertagia* sp. (medium stomach worms)
- 2) *Trichostrongylus* sp. (small hairworm)
- 3) *Nematodirus* sp. (thread-necked strongyles)
- 4) *Haemonchus contortus* (twisted stomach worm)
- 5) *Fasciola hepatica* (common liver fluke)

## b) External parasites

- 1) *Melophagus ovinus* (sheep tick)
- 2) *Dermacentor* sp. (woodtick)
- 3) *Oestrus ovis* (sheep nasal fly)
- 4) Sheep-wool maggots
- 5) *Cochliomyia* sp. (screw-worm flies)

## c) Infectious Diseases

- 1) Mastitis
- 2) "Lunger" disease
- 3) Vibrionic abortion
- 4) Foot rot
- 5) Caseous lymphadenitis
- 6) Blackleg
- 7) Anthrax
- 8) Lip-and-leg ulceration
- 9) Venereal infection
- 10) Contagious ecthyma

## d) Poisonous plants

- 1) *Lupinus* sp. (lupines)
- 2) *Astragalus* sp. (loco)
- 3) *Oxytropis* sp. (loco)
- 4) *Zygadenus* sp. (death camas)
- 5) *Helenium* sp. (sneeze-weed)
- 6) *Triglochin* sp. (arrow-grass)
- 7) *Ambrosia artemisiifolia* (bitterweed)
- 8) *Agave lecheguilla*
- 9) *Asclepias* sp. (milkweed)
- 10) *Tetradymia glabrata* (spring rabbit brush)



- 11) *Tetradymia canescens* (coaloil bush)
- 12) *Cicuta* sp. (water-hemlock)

### IIIa. Feeder Lambs (in the East)

#### a) Internal parasites

- 1) *Haemonchus contortus* (twisted stomach worm)
- 2) *Eimeria* sp. (coccidiosis)
- 3) *Ostertagia* sp. (medium stomach worms)
- 4) *Oesophagostomum columbianum* (nodular worm)
- 5) *Bunostomum trigonocephalum* (hookworm)
- 6) *Dictyocaulus filaria* (thread lungworm)

#### b) Dietary disturbances

- 1) Over-eating (over-feeding)
- 2) Unsuitable feed
  - a) Tympanites
  - b) Acute indigestion
  - c) Diarrhea
- 3) Water deprivation
- 4) Vitamin deficiencies (A and D)
- 5) Mineral deficiencies (?)

#### c) Respiratory conditions

- 1) Parasitic
- 2) Shipping
- 3) Housing
- 4) Management

### IIIb. Feeder Lambs (in the West)

#### a) Change of environment

- 1) Shipping
- 2) Exposure
  - a) Cold
  - b) Disease
  - c) Parasites

#### b) Dietary disturbances

- 1) Weaning
- 2) Hunger (fasting before and during shipment)
- 3) Change of feed
- 4) Overeating
- 5) Unsuitable feed
- 6) Urinary calculi
  - a) Vitamin A deficiency
  - b) High phosphate feeds

#### c) Infectious diseases

- 1) Dysenteries
- 2) Contagious ecthyma
- 3) *Eimeria* sp. (coccidiosis)
- 4) Hemorrhagic septicemia

## IV. Slaughter Sheep

#### a) Lambs

- 1) Pneumonia
- 2) Pleurisy
- 3) Acute nephritis
- 4) Autointoxication
  - a) Over-eating
  - b) Acute indigestion
- 5) "Weedy barb" (mechanical injury from spear-pointed seeds of plants)
  - a) *Avena fatua* (wild oats)
  - b) *Stipa* sp. (needle grass)
  - c) *Aristida* sp. (poverty grass)
  - d) *Bromus* sp. (bromes)
  - e) Foxtail

#### b) Sheep

- 1) Emaciation
- 2) Caseous lymphadenitis
- 3) "Weedy barb" (See Slaughter Sheep (b) )

The veterinarian can assist in maintaining lamb, mutton and wool production by giving a part of his time to the consideration of parasite and disease problems of sheep. Emphasis on preventive measures rather than individual treatment is suggested. Death and other losses can be largely prevented by effective parasite-control measures, adequate nutrition, and sanitation. The sheepmen should be warned against mineral salesmen, medicine peddlers, and promoters of vaccination with hemorrhagic septicemia biological products and "mixed infection" bacterins.

## INTERNAL PARASITES

Sheep are subject to a variety of infectious and noninfectious diseases. However, the most serious losses, especially in farm flocks, are caused by internal parasites. Death losses caused by internal parasites are of minor importance as compared to loss of flesh, unthriftiness, anemia, poor growth of wool and other effects on the breeding animals, as well as the increased time and feed required to get the lamb crop to market. These losses are difficult to evaluate, however, and usually do not receive a great deal of attention.

An efficient parasite-control program must be of long duration. Foresighted management and attention to details are required. It is especially important to protect the young lambs from gross exposure to parasites.

No one procedure is effective against all internal parasites. Systematic treatment, pasture rotation, animal rotation and proper feeding all have their place in a parasite-control program.

In some instances, owners of farm flocks treat their sheep for worms every twenty to thirty days. The fact that treatment is repeated so frequently indicates that it is not too effective, especially in farm flocks on permanent pastures.

Phenothiazine removes nodular worms, stomach worms, hookworms and a number

of other worms. The mixture of copper sulfate and nicotine sulfate is effective against stomach worms, some of the intestinal worms and removes tapeworm segments as well as a number of the heads. Kamala is probably more effective against tapeworms. There is no practical medicinal treatment for lungworms or coccidia.

Pasture or animal rotation is as essential for the health of animals as crop rotation is for the successful production of farm crops. The continuous use of pastures, lots or ranges for the same species of animal causes the land to become heavily contaminated with parasite eggs and larvae. Pasture rotation as practiced by most farmers consists of a change of pasture every three to eight weeks. This system is good for the pasture but is ineffective from the standpoint of parasite prevention. Most species of animal parasites will not live in the open for more than two years. The exact time will depend to a considerable degree on the variation in temperature and humidity. It is not practical nor necessary to attempt to destroy parasite eggs or larvae on pastures with chemicals. Time, cultivation, or the use of the land for some other species of animal will produce the desired results. Pastures that cannot be cultivated should be used for a different species of animal each year or for the production of hay. Every effort should be made to provide a clean pasture for the ewes and lambs. A clean pasture is one that has not been used for sheep for the past two years.

Pasture rotation and dilution of infective material on the feed are inherent in range conditions, as the sheep are continually moving to new areas and the area grazed per sheep is much greater than in farm pastures.

#### NUTRITION

Poor feeding, aided by the damage caused by internal parasites, causes a continuous loss to the sheep industry. Many farm-flock owners are of the opinion that sheep can get along on weeds and feeds that are unsuitable for other farm animals. They

frequently supply minerals but neglect to provide common salt.

Adequate feeding and free access to clean water and common salt will produce heavier fleeces, increase the longevity of the ewes and the livability of the lambs. The lambs will be stronger at birth, grow faster and reach market at an earlier age. Early marketing of the lamb crop will decrease the amount of feed required and reduce the time that they will be exposed to parasites. This will tend to decrease, rather than increase the parasite load on pastures and ranges.

Sheep as well as other farm animals are usually in good physical condition some time during the grazing season. However, in a high percentage of cases, sheep are at low ebb nutritionally approximately one month before the grazing season begins. This might be called the nutrition cycle. Unfortunately, the lambs are born during the low point in this cycle. Proper feeding of the ewes should begin at breeding time, not after the lambs are born. The exact amount of hay and grain required will depend on the pasture available, the physical condition of the ewes and the climatic conditions. During an average season in the North Central states, it will be found necessary to feed hay for at least two months before lambing and grain for at least one month, perhaps longer. One of the best rations for the average farm flock is yellow corn and a good legume hay. Good mixed hay and a mixed grain, 50 per cent of which is yellow corn, will be equally good or better in making sure that the ewe is adequately nourished. In the district west of the Rocky Mountains, corn is expensive and difficult to obtain. Rolled barley or oats used with alfalfa or mixed hay has proved satisfactory for range bands having to be fed in the late winter or early spring before going to the lambing sheds.

#### SANITATION

Sanitation is the employment of measures designed to promote health and prevent disease. It has to do with measures which destroy or make harmless the causes of

disease and break the life cycle of parasites. It is not the use of a large amount of disinfectants. Sanitation is cleanliness. It is the employment of measures designed to prevent the contamination of feed or water with manure, urine or other body secretions of animals. Clean water, wholesome feed, clean barns, sheds and houses, clean yards, pastures and ranges, good ventilation, and protection from exposure to disease or parasites are essential points in a sanitary program.

Sanitation is particularly important in connection with losses of young lambs. Where lambs are born on clean grass range in warm weather, as nature intended, disease loss in the first month of life does not exist. Many thousands of lambs are born when low temperatures and snow or rain make the buildings and lots very insanitary. These are the conditions which are responsible for the losses caused by navel infection, lamb dysentery, necrobacillosis of the liver, arthritis and tetanus. To prevent such losses, which at times are very serious, we must institute changes in management, building construction, disinfection of navels and methods of castration and docking.

The use of biological products may and probably will be continued as at present. The use of such products should be confined to cases in which there is a definite diagnosis of a disease for which a biological product of proved value is available. The results from their use will, however, be greatly enhanced if the sheep are reasonably free of parasites and are well nourished at the time the product is administered.

s/F. E. HULL, *Chairman*

L. D. FREDERICK	I. E. NEWSOM
HADLEIGH MARSH	L. R. VAWTER

But for tin, rubber, aluminum, chromium, nickel, manganese, tungsten, quinine, morphine atropine, strychnine and hundreds of other essentials of modern life, we could boast of having a fine, self-contained home for the isolationists.

## Biological Abstracts for Veterinarians

In January, 1942, *Biological Abstracts* established a new section (F) that contains abstracts of published works in all parts of the world, pertaining to animal production and veterinary science. This section was established for the benefit of the veterinary profession and furnishes the practicing veterinarian, the teacher, and research worker a complete coverage of the developments in the veterinary and animal production field. In no other American journal can one find so complete and up-to-the-minute, usable knowledge in veterinary science.

Few veterinarians are so situated or have the time to learn of many of the new developments in their particular field that are brought out in the vast number of scientific publications. The veterinary section of *Biological Abstracts* brings together, in condensed form, all of the latest developments in the veterinary field at a low cost to the subscriber.

The section in question has not had the support of the veterinary profession that it deserves. The present cost of publication of the veterinary section is greater than the income from subscriptions. It is obvious that this situation cannot continue. If the members of the veterinary profession do not show more interest in the Section, it will be discontinued.

The veterinary section is published monthly except during the four summer months, when it is published bi-monthly. A volume, therefore, consists of ten abstract issues plus the index issue of our complete edition. The price is only \$5.00 per volume. If you would care to see a sample copy, or if you should require any further information, please do not hesitate to write Dr. H. I. Anderson, Business Manager, *Biological Abstracts*, University of Pennsylvania, Philadelphia, Pennsylvania.

Goebbels of the Axis is called the smartest propagandist of all time. Is he outsmarting you?

## The Treatment and Disposition of Stockyards Animals Subjected to Gas Attacks

That communities on the North American continent will be subjected to serious, direct enemy attacks is, perhaps, only a remote possibility, but should not be discounted too greatly as a desperation measure of our opponents in this war. If such attacks should occur, gas might be one of the weapons employed, more as a psychological measure than from any hope of obtaining effective concentrations of gases over considerable areas.

Nevertheless, it is important to know how animals intended for slaughter for food may be handled if gassed, especially in stockyards. Both safety and food conservation are involved. Fortunately, to date there have been no actual gas attacks in allied countries to serve as tests of treatment methods. However, the experience of the last war plus experimental work done both here and in England have served to develop certain recommended procedures.

The information presented here was obtained through the courtesy of the Chemical Warfare Service and the Medical Department Research Laboratory at Edgewood Arsenal.

*Lacrimators, Irritant Smokes and Incendiaries.*—In general, these may be dismissed as not injuring animals sufficiently to render the carcass unfit for consumption.

*Lung Irritants.*—Cattle, hogs and sheep exposed to the effects of lung irritants should be processed within twenty-four hours or during the latent period before symptoms set in.

Following onset of symptoms of respiratory distress, animals may still be used for human consumption as long as the lesions are confined to the respiratory tract and the remainder of the carcass is not damaged. Temperatures should be taken on animals showing symptoms and those having a fever with frothy, blood-tinged nasal discharge, marked dyspnea and debility

should be condemned. All animals showing symptoms should be treated as suspects and marked with a retained tag pending postmortem examination. Carcasses showing pulmonary edema only may be used for food provided internal organs and glands are discarded.

*Vesicants.*—All animals which have been exposed to vesicant agents in any way must be decontaminated before being taken to the killing floor.

*Decontamination.*—Decontamination of animals can be accomplished by the following procedures. First, the animal is thoroughly washed with water, preferably from a fire hose. Then, it should be scrubbed thoroughly with a brush using either 5 per cent potassium permanganate solution or bleach slurry, and then washed well a second time to remove the decontaminating agent. Exposed animals should be segregated at all times and kept in open pens where there is no possibility of a high vapor concentration of the agent developing. Decontamination is done in a well-drained enclosure with hard pavement in order that it may be easily decontaminated after the animals are removed.

*Protection of Personnel.*—Personnel in packing plants handling contaminated animals should be instructed about these agents and methods of decontamination beforehand. In order to handle the animals safely, they should be provided with gloves, aprons, and boots, either of rubber or of an impervious cloth. The skimmers on the killing floor should be advised to wash their hands frequently and to scald their knives in boiling water.

*Disposition of Animals and Carcasses.*—Animals which have been exposed to vapors of the various agents may be used for human consumption provided they pass the usual antemortem and postmortem examinations.



Animals slaughtered following exposure to liquid mustard should be skinned carefully in order to avoid contamination of the flesh with any of the agent remaining on the outside of the skin, the flesh under the lesion trimmed away, and the offal discarded. The remaining meat will be safe for consumption.

Carcasses of animals exposed to liquid arsenical agents should have all discolored flesh removed at the time of slaughter. The rest of the carcass should be submitted for analysis before being released for consumption.

Animals showing symptoms of a gastroenteritis caused by eating contaminated forage or from licking contaminated areas of the skin are to be condemned.

The best methods to use in disposing of a carcass are those used by the Bureau of Animal Industry in its routine procedure of inspection. Employees of the Bureau should be trained in the recognition and handling of chemical warfare agents in order that they may be prepared to handle such an emergency.

### Penicillin Experiments

With the coming of sulfa drugs, tyrothricin, and penicillin, chemotherapy has taken a place in medical practice comparable to the advent of the antisera of the nineteenth century. Of these, penicillin is obviously the most sensational, in view of its extraordinarily high germicidal properties in weak dilutions. The lethal dose (for mice) is 64 times greater than the therapeutic dose, according to Robertson (*J. Phar. and Exper. Therap.*, Jan. 1943) who pronounces it more effective than sulfa drugs in pneumococcic, streptococcic, and staphylococcic infections. It had no apparent effect on the tubercle bacillus.

A statement designed to acquaint the medical profession with the progress being made in the production of this extractive of the mold *Penicillium notatum* commercially is described at length by the Committee on Medical Research in the May 22

issue of the *Journal of the American Medical Association*. Researches aiming to overcome production difficulties which have been carried out under the sponsorship of the Rockefeller Foundation at the Northern Regional Laboratory of the USDA at Peoria, Ill., are being continued by the Merck, Squibb, Pfizer, and Lederle companies. Methods of obtaining productive strains of the mold, finding suitable mediums, and developing methods of extraction, purification, and stabilization remain to be worked out.

Penicillin was discovered by Fleming (London) in 1929. It was first announced in the *Lancet* in 1940 and in this country in 1941. At the present time, 20 liters of culture medium are required to produce 1 Gm.

### The Nervous System in Tetanus\*

A study of 12 cases of tetanus *post mortem* revealed the changes in the central nervous system in patients dead of tetanus. The study showed that tetanus toxin *does* have an affinity for the central nervous system and that if the malady is prolonged its tissues suffer structural damage, not only functional impairment. In the acute, rapidly fatal cases (*e.g.*, five days), the damage is not anatomically apparent. The cells of the cortex suffer most. In cases lasting over five days, perivascular areas of demyelination and gliosis occur. These lesions are widely distributed within the cerebral hemispheres and may even take the form of confluent areas of tissue destruction. The medulla is not exempt. The belief that tetanus kills through exhaustion, circulatory failure, or asphyxia from spasms of the glottis, diaphragm, and intercostals must, therefore, be revised. Tissue damage, never before clearly described, is thus added to the pathology of tetanus.

\*Baker, A. B., M.D.: Central Nervous System in Tetanus. *Journal of Neuropathic and Experimental Neurology*. Abst. J.A.M.A., 121, (Feb. 6, 1943): 461.

# Digestive Disorders in Dairy Cattle

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WEBSTER SAYS that derange "is to disturb the normal function of," and that is the cause of most of the digestive disorders. But first, let us survey the digestive tract, not going into detail, but roughly refixing in mind the description and functions of its various parts as they pertain to this subject.

The digestive tract begins with the lips, teeth, tongue, and throat, but these I shall not discuss. The oesophagus comes next and ends in the stomach. The rumen is the largest part of the stomach. It lies principally on the left side and is a storehouse for the coarse food when first hurriedly swallowed. Its capacity is about 55 gal. Its walls, while relatively thin, have strong muscles which give it power to roll and mix large amounts of wet foods, principally roughage.

The *reticulum* is next and is the smallest of the four parts. It lies just posterior to the diaphragm, at the tip of the liver, and not far from the apex of the heart, making it the seat of most of the fatal stomach conditions. The butcher's name for this part is the honeycomb, which describes its internal appearance nicely. The oesophageal groove should be mentioned here, for that is where the food bolus or cud is started back to the mouth for rechewing. I have counted the number of times a bolus is chewed and it varies from about 20 to almost 50.

The *omasum* or *manyplies* is next, and receives the food after it has been made fine by the rechewing. It remains here for a time to be soaked with additional gastric juices and then is passed on to the abomasum or rennet where the last of the gastric juices are added.

The *abomasum* empties into the small intestine, which is only about half as large

as that of the horse but twice as long, being close to 150 ft., and terminates in the cecum. This blind gut is only about 3 ft. long and empties in turn into the colon, through an outlet that is near the inlet. The colon is about 35 ft. long and empties into the rectum, making a total length of nearly 200 ft. from beginning to end.

So much for the rough anatomy of the digestive tract. I shall not try to describe the blood supply, the nerve supply, nor the function of the various glands that empty secretions into it throughout its length.

The first conditions that we are called on to treat, beginning at the mouth, are injuries of the lips, tongue, and teeth. The causes of these will be so obvious that I shall not take time here to describe them.

## FOREIGN BODIES

The oesophagus is the usual location of most of the chokes and accidents that cause choke. A choke is usually due to a large round object, such as an apple, peach, potato, or beet. The object is made slippery with saliva, and the muscles of this organ cannot push it down nor can it come back. To treat it, we need a mouth speculum and a small-handed assistant; then the operator tries to push the object up to where the assistant can pull it back through the mouth. Those chokes caused by dry, fine feed may be softened with the use of arecoline, or drugs of similar action. I have not used belladonna nor yeast, but they seem to be indicated and have proved successful in the hands of others. When the offending material is of a finer nature, placing the stomach tube as far down as possible and pumping warm water against the material, allowing it to syphon back, will relieve that class of choke. Principally, success will depend to a large extent on the duration of the obstructions and the physical condition of the animal.

The oesophagus terminates in the reticulum, which acts in coördination with it

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both to deliver the food to the rumen and to shape the food into a bolus and start it back to the mouth for rechewing.

The reticulum is the stoppage point for the objects that do not float and, therefore, is the site where foreign bodies get their start on the road to doing all kinds of damage. In my practice, I seldom see a case until the damage is such that the patient can not endure an operation. This condition is common and is usually the result of carelessness. In my opinion, fully 75 per cent of the milk cows more than 5 years of age are suffering from this condition. Many people call this "hardware disease." I have found almost every kind of object from money to razor blades. Recently, at the abattoir, I removed 11 blades and a rubber ball from one cow, none of which had done any special harm. An object that is sharp and straight, such as a needle or wire without a head or bend to stop it, may go in any direction, but will usually go toward the apex of the heart; it seems that the constant throb acts as a magnet, drawing the object toward it. When called, the history one gets is that the animal has been off feed, usually eating best every other day or every two days. The bowel action is loose at one time and tight the next, continuing to get looser as the condition progresses. The animal usually remains standing, with the elbows out. On going down hill, there is a distinct grunt. Pressure applied just back of the sternum will cause pain.

The treatment is surgical. The operation has been demonstrated at many of our meetings, so I shall not discuss it. One treatment, used many years ago, is to lay the animal on its back and massage backward from the sternum, with the idea of forcing the offending object, along with the pus that surrounds it, back into the reticulum. I have not used this in recent years, but it will sometimes get results. Many times, it is advisable to recommend slaughter if the animal's flesh will be good enough for food purposes.

## THE RUMEN

In my opinion, the rumen is the seat of most of the digestive troubles. These consist of about four separate conditions; namely, impactions and sluggishness, which might be classed as the same; bloat with gas; and bloat with foam or froth. The last is the most difficult of all to treat.

Impaction should be treated with laxatives, not purges, stimulants, plenty of water, and kneading the load through the flank. The stimulants should be of both kinds, that is, systemic and local, or rumen stimulants. The first group may be alcohol in the form of tinctures, such as nuxvomica, gentian, ginger, and the like. The rumen stimulants are tartar emetic, barium chloride, gamboge, and others. The sluggishness or stasis should be handled in about the same manner, though the doses should not be as large nor repeated as frequently. In cases not relieved with drugs, rumenotomy will be necessary.

Gas bloat is usually easily relieved, first by setting the patient up, if she is stretched out, placing a gag in the mouth to stimulate chewing, and using the stomach tube. Whatever antiferment one uses may be given through the tube, being sure to keep the tube moving most of the time. But when the bloat is caused by a foam or froth, there is a difficult job to do. If there is not too much distress, I try to relieve the bloat with the tube and antiferments. When this does not work, I tap the rumen with a large trocar and cannula and use more antiferment through the cannula with a rumenotomy outfit, trying to distribute it through the entire contents of the rumen. This will cause gas pockets to form and in time the patient will be relieved, though this has taken me as much as a week. Someone will have to stay close by and keep the cannula open, by using a plunger of some kind. Comparatively large doses (2 to 5 gal.) of oil may be used, with the idea of allowing the gas bubbles to rise to the top of the fermenting mass and there be removed through either a tube or a cannula.

There are two intestinal conditions that I shall mention: *scours* and *intussusception*.



*Scours* is caused by many different reasons and conditions. In young animals, dirty feeding vessels which carry a large number of bacteria, cold milk, parasites, and, in some cases, bedding young calves on shavings which are eaten in the place of roughage; in yearlings and older animals, parasites and unbalanced rations. All these conditions may be treated according to symptoms and many will recover. The next class of scours—and the ones I dread most—is caused by poisons such as paint or lead, arsenic from sprays, and sodium nitrate from fertilizer. For want of anything better to do, I use the old-fashioned antidote for arsenic, which is, as you know, a newly made mixture of iron oxide and some form of magnesium. I use milk of magnesia, giving 1 dose and leaving 2 more to be given each hour. Sodium thiosulphate, intravenously, is supposed to be a specific, but does not always effect immediate results. Magnesium sulfate, or any sulfate to make an insoluble lead salt should be used in paint poisons. Stimulants by mouth and calcium gluconate, intravenously, many times will aid recovery.

*Intussusception*, to me, is easily diagnosed and in my practice I see 3 to 10 cases per year. The symptoms are marked. The general expression is more or less anxious in appearance. The belly is large, droops down, and upon palpation, there is nothing but soft and fluid material. Many times, the history reveals that at the onset of the condition the cow was colicky, that the pain did not last long, and that she would drink a little but would not eat. Upon rectal examination, the hand will come away covered with a bloody, mucous material with very little fecal matter in it. By palpating far forward and downward on the right side, sometimes the hard knot can be detected. I base my actions upon the little things I can see, rather than on feeling the intussusception itself. My procedure, after I have satisfied myself with the diagnosis, is to fasten the animal in a standing position, using a lead and assistants to keep her from moving about. Then I prepare plenty of instruments, clean most of the right side, decide where I want to go in,

and anesthetize a line long enough for me to get my hand through the incision when it is made. When I am through the incision and into the abdominal cavity, I pass my hand backward to get beyond the omentum and onto the small intestine, sometimes feeling or locating the tie right there; in other cases, it is necessary to go downward into the cavity where one can locate the hard mass without much trouble. I then gently lift the mass up to where I can see what it is, bring it out through the incision, and proceed to remove a V-shaped section of the omentum, ligating the larger vessels and then cutting the intestine, being sure to remove all the inflamed and congested area. I make an end-to-end anastomosis, being sure that the contents go through into the empty end. I then replace the gut as well as I can and, if the job is as it should be, the bowels will move in three or four hours. The patient should be given plenty of water and a small amount of food, but not allowed too much exercise, although I had one that went to the pasture the next day, while another that Dr. ——— and I operated upon died in a few minutes. I had one that made a record afterward.

#### MILK FEVER AND ACETONEMIA

The next group of disease conditions I am going to discuss may not meet your approval. I honestly believe that *acetonemia* and those conditions closely related (including *milk fever*) are derangements caused by an unbalanced diet and that, many times, the unbalance is not due as much to the feed itself as to what that feed does not contain. We, who live in the old farm districts where plowing has been done for generations and where the thought of building up the soil has never entered the head of the plow, also know that the soil is underlaid with granite formations and the water is almost pure from a mineral content standpoint. The food crops grown upon this soil are bound to be lacking in minerals that are necessary for normal health and growth. We have iodine in abundance, while many sections suffer from a deficiency. We may have nearly enough of phosphorus and iron,



but many of the others are on the minus side.

Acetonemia usually occurs in the individual owner's cow, but seldom in the herd of the successful dairyman, who thinks about what he is feeding and why, and who plans his feeding throughout the year. The acetonemia cases I see usually have a history of about the following ration, whether I get it from the owner or from what I can see in the feed box, feed room, or milking barn. They have been fed on shucks, straw, crap grass hay, fodder, tops, or hulls and meal; seldom, in these cases, do I find a good peavine hay. If I do, it has been spoiled with hulls and meal. Lespedeza hay, in my experience, does not do what good alfalfa or peavine hay will do in correcting this nervous condition. The grain ration that I recommend is a good grade of commercial horse feed with plenty of molasses, and now much of that will have to be added since sugar rationing has gone into effect. If fed with a good grade of peavine hay, most of them recover; of course, I start with a laxative and a small dose of chloral hydrate daily. If they are in serious condition, I give a dose of dextrose, intravenously. In milk fever cases, I feed the same ration for one month after calving and advise the same two months in advance. If that is the only feed one can get and it was grown upon land deficient in mineral, especially calcium, I think it is a good practice to add a mineral supplement and that should be one that is known to be digestible. Several I have known are not.

#### CONCLUSION

We owe much to the laboratory man. He knows why so and so does this and why it does not. He figures what happens when two or more drugs are put together. We use them as he says and expect the results that he says we will get. We never should have discovered the antidote for prussic acid, the lacking elements in conditions such as milk fever, the antiserums for the virus diseases, and benzoil for screw worm. In turn, he owes us for using and not abusing those preparations and reporting to him the results we get, especially the results that are not good.

In the true sense, practice is the ability to see the many little things that the average man misses entirely. We should endeavor to train ourselves so that we see every detail that the layman will miss. Most of us will develop ideas and habits that are a long way from what we were supposed to learn in school; some of these are good and some are bad. But, when you have finished a case, review it and be satisfied that you have handled it to the best of your ability and knowledge, and even though the animal ceases to exist, you will then have no regrets.

#### Tropical Diseases

An army booklet on tropical diseases, just out, broaches the subject by stating that half a dozen pages would be sufficient if by *tropical diseases* be meant diseases peculiar to the tropics. Identical diseases at home impose less serious problems because organized forces are in operation to fight them. Moreover, the home diseases meet an immunity not present in tropical populations.

Besides, climate is not as unfavorable to man as it is favorable to microbic life and insects; and not to be forgotten is that the tropics have everything in climate from perpetual snow and hot deserts to humid jungles of both kind and unkind temperatures. Owing to altitude, many a tropical city has a more delightful climate than the cities of Europe and North America. One can freeze to death at the equator.

The difference in the incidence of diseases and their mortality lies mainly in the measures instituted for their control: rigid sanitation and hygiene in the one, and absence of these preventives in the other.

Among the curses of the tropics are malnutrition, digestive infections, bad teeth, piles, hernias, and the neglect of vaccination against typhoid and paratyphoid fever, smallpox, yellow fever, tetanus, and other preventable infections. It is the backward populations, not the white man, who give the tropics the reputation of being repulsive.

# Further Observations on the Use of Iodized Mineral Oil as a Treatment for Bovine Mastitis

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PRELIMINARY observations recently reported by the author<sup>1</sup> indicated that iodine in mineral oil in dilute solutions has sufficient therapeutic properties as a treatment for chronic bacterial infections of the bovine udder to warrant further investigation. Experimental work on the use of this preparation as a treatment for udder infections is being continued. Tests are conducted in infected dairy herds where the owners are willing to cooperate in maintaining principles of sanitation necessary for evaluating results of the treatment. It appeared desirable to develop a technique of administering the drug in the mammary gland by direct injection through the teat canal with minimum interference with milk production. It is important to ascertain the strength of solution which will prove bactericidal for microorganisms that have invaded the udder and at the same time not produce an irritating effect upon the epithelial tissues with which it comes in contact. The amount and frequency of injections necessary for this purpose, the length of time the drug should remain in the milk cistern, and the stage of infection to receive treatment must be determined. Previous experiments indicated that the epithelial tissues of the bovine udder tolerated a 1 to 1,000 to 1 to 1,500 concentration of iodine crystals dissolved in heavy, medicinal mineral oil. Additional observations have revealed that, occasionally, individuals are found in which the udder tissues react severely to the 1 to 1,000 concentration;

consequently, approximately a 1 to 1,250 dilution of iodine in mineral oil was used in treating mastitis infections described in this report.

## MATERIALS AND METHODS

**Preparation of Iodized Mineral Oil.**—The iodized mineral oil may be prepared by dissolving the iodine crystals in ether. Approximately 10 cc. of ether are required to dissolve 1 Gm. of iodine crystals. A concentrated solution of iodine in ether may be used as a stock solution for mixing with liquid petrolatum (medicinal mineral oil) in preparing iodized mineral oil for udder injections. To prevent iodine being deposited on the side of the container from rapid evaporation of ether during the mixing process, a small amount of liquid petrolatum may be incorporated into the concentrated stock solution as follows:

Iodine	U.S.P. resublimed dr.	0.8	3.2 Gm.
Ether	U.S.P. anesthetic oz.	1.5	45.0 cc.
Petroleum	U.S.P. liquid oz.	0.5	15.0 cc.

Dissolve the iodine crystals in the ether in a 2-oz. bottle. Add the petrolatum. Cork tightly and shake. Mix with 1 gal. of U.S.P. medicinal mineral oil to make approximately a 1 to 1,250 dilution of iodine in oil.

Iodine in mineral oil forms a simple true solution. According to Johnson,<sup>2</sup> the iodine is stable except for a very gradual loss by volatilization. No noticeable deterioration occurs over long periods of time, provided the preparation is kept tightly corked.

**Technique of Application—Dry Udders.**—Udders found to be shedding mastitis microorganisms and those showing a high leucocyte content in the milk due to the mild or chronic types of infections are treated preferably during the dry period. The injections should be given before the udder resumes physiological activity for the succeeding lactation. After the udders are thoroughly dried off, the milk cistern of the previously determined infected quarter is injected with sufficient iodized mineral oil to distend it comfortably. Amounts up to 500 cc., or more, depending upon the capacity of the milk cistern, are introduced under aseptic conditions via the teat canal by

<sup>1</sup>Presented before the Section on General Practice at the seventy-ninth annual meeting of the American Veterinary Medical Association, Chicago, Aug. 24-27, 1942.

<sup>2</sup>From the Florida Agricultural Experiment Station, Gainesville, Fla.

<sup>3</sup>Sanders, D. A.: Iodized Mineral Oil as a Treatment for Bovine Mastitis. *Am. J. Vet. Res.*, 2 (Oct. 1941): 407-410.

<sup>2</sup>Johnson, F. F.: Personal communication.

means of a pressure injector (fig. 1). To facilitate distribution of the iodized mineral oil over the epithelial surface of the mammary tissues, the quarter is massaged immediately following the injection. Undue pressure upon the milk cistern, from injecting larger amounts of the medicinal preparation than necessary for comfortable distention, should be avoided. The drug may be allowed to remain within the udder during the entire dry period. In certain instances, depending upon the degree of infection, the quarter should be stripped out as thoroughly as possible ten to fifteen days after treatment and the injection repeated. The latter procedure is particularly important if, after ten to fifteen days, the treated quarters contain thin, watery exudate instead of thick, creamy oil.

**Lactating Udders.**—While best results in treating mastitis with iodized mineral oil have been obtained with nonlactating udders, it is often desired to treat infections during lactation. Cases of acute mastitis associated with high body temperature, loss of appetite, and greatly reduced udder secretions may be treated with iodized mineral oil without causing additional irritation of the glandular tissues. A preliminary rinse, using 300 to 500 cc. of a 1 to 1,250 dilution of iodine in mineral oil, together with thorough massage and stripping of the affected quarter, often aids in removing coagulum present. Early removal of the coagulum often associated with acute udder infections is a necessary prerequisite in the successful handling of these cases. After rinsing the cistern with iodized mineral oil, 300 to 500 cc. of a 1 to 1,250 dilution are injected into the lactiferous sinus and the quarter is massaged. The injected material is stripped out after twenty-four hours. This treatment may be repeated at 24-hour intervals.

Chronic infections of the lactating udder associated with abundant purulent exudate are treated by injecting iodized mineral oil into the milk cistern in an effort to alleviate the disease process. The diseased quarters are stripped as thoroughly as possible, rinsed with iodized mineral oil, and injected with 500 cc. of the preparation. Two or three treatments may be given at 24-hour intervals. Regular milking of these infected quarters is recommended until it is safe to dry them off. After the quarters have been dried off, they are injected with iodized mineral oil as previously described for dry udders.

#### RESULTS OF TREATMENT

Microscopic examination of milk samples from udders treated during the dry period showed no abnormality as a result of the injections. Microscopic examinations of stained smears, prepared from carefully

collected and incubated milk samples during the succeeding lactation period, indicated that the infection had been destroyed and that the leucocyte content of the milk, due to infection, had been eliminated.

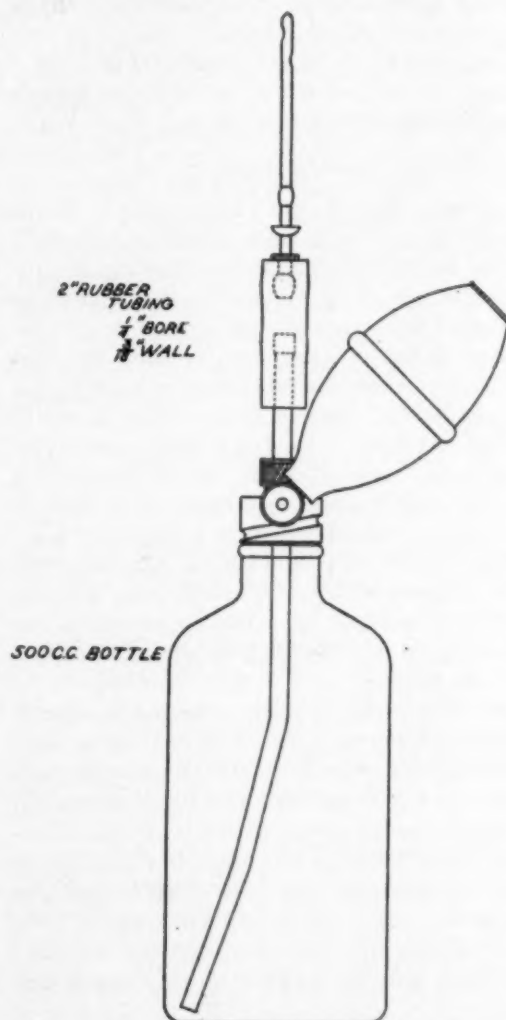


Fig. 1 — Pressure injector for introducing iodized mineral oil into infected udders via the teat canal.

There was no indication that treatment of dry udders by the injection of a 1 to 1,250 dilution of iodized mineral oil caused any harmful effects, either temporary or permanent, upon the mammary tissues, or that it reduced milk production during the succeeding lactation. These results are based upon observations made on 20 cases of chronic mastitis infections. Records of sev-

eral animals which freshened following treatment showed a higher milk yield than during the previous lactation when the udder tissues were harboring mastitis microorganisms. Results of treating cases of acute mastitis with 1 to 1,250 dilution of iodized mineral oil depend upon the location and extent of the infection and upon udder secretions which adversely influence the bactericidal action of the drug.

#### INFECTION SPREADS SLOWLY

The spread of mastitis streptococcus infections within a dairy herd usually is a slow and gradual process. During the initial stage of invasion of the mammary gland, these microorganisms, which enter through the external teat orifice, may find lodgment upon the epithelial surface of the lower udder tissues. Here the bacteria often remain localized and undetected. Often, a balance exists between virulence of the bacteria and resistance of the tissues not associated with clinical evidence of mastitis. Under the influence of various stimuli, perhaps after several lactation periods, or often without apparent cause, the quiescent bacteria may become active. The microorganisms then invade the mammary tissues beyond the point of initial lodgment. The invading bacteria eventually gain position in the upper glandular tissues and provoke the usual structural and functional alterations characteristic of mastitis. Clinical manifestations of mastitis in one or more animals of a dairy herd are suggestive evidence that unknown infections of the udder exist in cows which are not suspected of harboring the causative microorganisms.

#### EARLY DIAGNOSIS IMPORTANT

In the control or eradication of mastitis within a dairy herd, it is important to detect the latent or mild cases of udder infections serving as reservoirs of infection and facilitating subsequent spread of the disease. The treatment of clinical cases of mastitis as they arise within a dairy herd will not result in proper control or eradication of the infection. Destruction of the causative microorganisms within the mammary tissues is accomplished most successfully if undertaken during the initial stages

of the infective process. At this time, the bacterial foci are vulnerably situated in the lower regions of the mammary tissues and they have not provoked extensive pathological lesions upon the udder parenchyma. Chronic bacterial infections that have become established in the upper mammary tissues and may be associated with abundant purulent exudate or extensive fibrotic lesions offer less favorable opportunity for successful treatment.

A program for controlling or eradicating mastitis infections within a dairy herd should, therefore, include, as the prerequisite, reliable diagnostic tests capable of detecting the presence of causative microorganisms in the milk of unknown carriers. Such diagnostic tests offer valuable means of indicating the efficiency of the treatments used to counteract udder infections. Mastitis infections referred to in this report were detected by microscopic examination of stained smears prepared from carefully collected and incubated milk samples. Composite samples were first examined, and this was followed by examinations of individual quarter samples from cows found to be shedding mastitis microorganisms. Many investigators believe this method of diagnosis to be a dependable means of detecting early udder infections, particularly those due to streptococci. It is realized that numerous other tests are an aid in making a diagnosis.

#### TREATMENT OF DRY UDDERS MOST SUCCESSFUL

It is known that mastitis microorganisms may remain in the infected udder for long periods and that they may be demonstrated in the milk during succeeding lactations. Treatment of these infections when the mammary gland is in the dormant or nonlactating state offers certain advantages over treating infected udders which are lactating or forming colostrum. Application of bactericides to the epithelial tissues of the nonlactating gland precludes interference with the medicinal agent from udder secretions, does not interrupt the normal milk production schedule of the dairy, and permits the drug to remain within the



treated quarter for longer periods. Microscopic examinations of carefully collected and incubated milk samples for presence of mastitis microorganisms, and the use of other tests capable of detecting infections, make it possible to classify the animals, form a sound basis for handling infected herds, and serve as a means of evaluating results of treatments given.

The problems connected with mastitis control and eradication, including detection of unknown carriers, classification of animals in the diseased herd, management methods, treatments of mastitis infections, and other essential features should be entrusted to the trained personnel of the veterinary profession; otherwise, only confusion and failure will result.

#### CONCLUSIONS

Three hundred to 500-cc. injections, using a 1 to 1,250 concentration of iodine crystals in mineral oil, into the milk cistern of infected, nonlactating udders *via* the teat canal proved valuable in destroying mastitis microorganisms and eliminating the high leucocyte content of milk due to infection.

The drug may be applied with safety to the epithelial surface of the mammary tissues in acute mastitis.

The treatment of clinical cases of mastitis as they arise within a herd will not result in control or eradication of the disease.

The use of diagnostic tests capable of detecting unknown carriers of udder infections should be included in the program for eradicating mastitis. After detection, infected udders may be treated during the nonlactating period prior to calving.

Treatment of dry udders precludes interference with the medicinal agent from udder secretions and does not interrupt the normal milk production schedule of the dairy.

#### Carbohydrate Per Se Disapproved

Commenting on the International Food Conference, Lieut. Commander Benj. P. Sandler, U. S. Navy Medical Corps (*J.A.M.A.*, May 22, 1943, p. 251) recommends that the consumption of foods rich in carbohydrate should be discontinued. Quot-

ing: "Good nutrition is a vague term; it means not only sufficient calories and food of adequate quality and quantity, but also a greater amount of protein and fat and far less carbohydrate rich foods than the present day standards permit. I would recommend that the consumption of carbohydrate rich foods by human beings be ultimately discontinued."

The contention is based upon longtime experience in treating arthritis, peptic ulcer, colitis, angina pectoris, tuberculosis, dyspepsia, flatulence, abdominal pain, neurones, and headaches. The incidence of tuberculosis increases and its morbidity accentuates, with increased consumption of flour and potatoes. Bread and potatoes are blamed for the high tuberculosis mortality related to World War I.

#### The Chicken and Egg Crop

The USDA announces, as of Jan. 1, 1943, that the number of hens, pullets and other chickens was 540,107,000, valued at \$560,095,000. The 1942 figures were 474,910,000 head valued at \$395,042,000. The average value per head increased from 83.2 cents to 103.7 cents.

The gross income from eggs for 1942 was \$1,184,587,000. The average number of eggs laid by hens and pullets was 142 per head.

Our four horsemen of the apocalypse are contagious diseases of farm animals: cattle, swine, sheep and poultry.

#### Texas Health Unit Wants Veterinary Inspector

The McLennan County (Texas) Health Unit wants a graduate veterinarian to do meat inspection work in the city of Waco, also part time work with dairymen on veterinary aspects of milk sanitation. The Health Unit is very anxious to obtain a veterinarian and the salary will be determined by the capabilities of the man employed.

Communications should be addressed to Alan C. Love, Sanitary Engineer, City Hall, Waco, Texas.

## Laying House Program of Poultry Conservation for Victory

*This bulletin is the last in a series of three bulletins to be issued by the National Poultry Advisory Council, in collaboration with the Bureau of Animal Industry, U.S.D.A. The subject matter is printed below; the bulletin itself is sixteen pages, 4 by 9 inches in size and pointedly illustrated with cartoons.*

*Veterinarians are urged to supply themselves with copies of this and previous bulletins for distribution to their poultry-growing clients. (See the June, 1943, JOURNAL, page 459, and the July, 1943, JOURNAL, p. 15.)*

*The delivered prices of the Laying House Program bulletin are: 100—\$1.65; 200—\$3.25; 300—\$4.50; 500—\$6.75; 1,000—\$12.50. Checks should be made out to the National Poultry Advisory Council, and sent with order to Mr. Lee Hammett, Rm. 1630, 201 N. Wells St., Chicago 6, Ill.*

### MANAGEMENT OF LAYERS

1) *Sell Old Stock, Except Breeding Flocks, or House Pullets in Separate Building.*—Employ one of the three following methods to provide safe, adequate housing space for the pullets:

a. Sell all old stock, except breeding flocks, one to two weeks before housing pullets, to control several infectious diseases. These may be transmitted from the old stock to the pullets, even though the adults show no visible symptoms.

b. House pullets in a separate building. If the old stock has been housed in more than one building, cull the hens rigidly one to two weeks before housing the pullets, and combine to make one or more houses available for pullets only.

c. The Laying Shelter Plan: Cull the old stock and move the layers into laying shelters in May or early June.

Laying shelters should provide approximately the same floor space per bird as the laying house, and consist of roof, roosts, and wire or slatted sides. Be certain to provide adequate feed, water and nest space. Layers housed in this manner will be productive for two to four months (July to October inclusive) in localities where the nights are not too cold during this period. In this manner, early hatched pullets can be housed at the proper age (5 to 6 months), thus providing additional egg production.

Be certain to cull the old hens carefully before they are put into the barracks.

2) *Clean and Disinfect House and Equipment.*—Remove all litter, nesting material, and droppings. Scrape, sweep, scrub, and scald the floor. One can of household lye to each 15 gal. of very hot water, applied to the cleaned floor, destroys coccidia and parasite eggs. When the floor is dry, apply an approved disinfectant to floor and walls. Spray or paint the roosts and droppings boards with a reliable oil-base insecticide

(such as one of the carbolineums) to destroy mites. Scrub all equipment and, if possible, expose it to sunshine for a day or two.

3) *Clean and Grade Ground Around Laying House.*—If the layers are allowed out of doors, remove boards, large stones, and trash from around the building. To improve sanitation, fill in low places with clean gravel.

4) *Use a Deep, Highly Absorbent Litter and Change Less Frequently.*—Use crushed corn cobs, shredded corn stalks, straw, shavings, dry sawdust, a good commercial litter, or other satisfactory material, at least 3 inches in depth. If straw is used it should be mixed with one of the above-mentioned materials.

Stir and level litter once a week or oftener if necessary. Add some new litter each week or two until it is 6 inches deep by December 1. In the absence of an outbreak of an infectious disease, this built-up litter need not be changed throughout the fall and winter months. Deep, highly absorbent litter reduces moisture and provides insulation for the floor. This practice does not increase disease hazards.

If areas become wet from rain or spilled water, remove the wet litter at once, level the remaining litter, and add new litter if necessary.

These practices save labor, time and money; deep, highly absorbent litter is one insurance against lowered egg production during cold weather.

5) *Provide Sufficient Feed and Water Containers, Nests, and Roosts.*—For feeding mash, provide at least 20 linear feet of hopper space, open on both sides, for each 100 birds. Place all feed hoppers in well-lighted areas—at right angles to the front of the house. Adequate light on the feed is essential to high egg production.

Provide an abundant supply of clean water—at least 6 to 8 gal. daily, for each 100 birds.

Provide plenty of nests—one for each 5 to 7 birds.

Provide adequate roosting space over either a droppings board or pit.

6) *Provide Adequate Ventilation.*—Provide proper intake of fresh air and outgo of foul air, without drafts. Regardless of climate and temperature, provide some ventilation, even though the opening may be small. In cold climates, insulated ceilings and walls are essential in maintaining sufficient difference between inside and outside temperatures to establish proper circulation of air. To provide adequate summer ventilation, and distribution of light on the litter, install one window for each 10 to 12 feet of back wall space.

7) *Protect Feed and Water Containers to Prevent Wastage and to Improve Sanitation.*—Use feed hoppers constructed to prevent wastage. Do not fill feeders too full. Place all water containers on slatted or wire platforms to keep birds from contact with litter which may become wet or contaminated.

8) *If Floor Space Is Inadequate, Employ Better Management.*—Egg production tends to decrease as floor space per bird decreases. Likewise, mortality tends to increase in proportion to crowding. Use all laying houses to capacity, but if layers are crowded, provide deeper litter, more feeders, more waterers, and better management.

9) *House Pullets Early to Insure Early Production.*—Regardless of date hatched, pullets should be housed at early maturity, about 5 to 6 months, depending on the breed. If circumstances prevent, then provide adequate shelter, feeders, waterers, roosts, and nests, on a good pasture range. However, do not make the mistake of leaving the pullets on range after freezing weather sets in.

Keep pullets confined to the laying house all day, or at least until afternoon, when they may have the run of a yard. In warm climates, where good range is available, it may not be necessary to confine pullets. Do not permit them to mingle with hogs, turkeys or other fowl.

10) *Treat Pullets if Infested with Roundworms.*—If the pullets on range have become infested with roundworms, use a reliable treatment before housing.

11) *Provide Leafy Hay to Newly Housed Pullets.*—Cure a sufficient amount of alfalfa or clover before blooming and make this hay available to the pullets when first housed. Fresh-cut green feed will serve the same purpose. This practice helps the birds adapt themselves quickly to their new surroundings, and frequently prevents cannibalism.

12) *House Only Good Birds.*—Carefully cull the pullets at housing time. Destroy all sick

pullets and market underdeveloped ones, thus improving flock health and conserving valuable meat, feed, labor, and floor space.

13) *Care for Eggs Properly.*—Provide sufficient nesting material and gather eggs frequently, to prevent breakage, dirty eggs, and loss from heating or freezing. Gather eggs in wire baskets or slatted containers, to permit quick cooling.

Store eggs immediately in a cool place with adequate humidity. Do not case eggs until they have cooled. Market eggs once a week or oftener, and protect adequately in transit. Avoid rough handling.

14) *Prevent Infection from Outside Sources.*—Disease germs and parasites may be introduced with newly purchased growing and adult stock, or carried on the shoes and clothing of persons, and on the feet of dogs and other animals. Poultry crates, equipment, and feed bags should be properly cleaned and disinfected before re-use.

15) *Prevent Losses from Rats.*—Maintain a constant war against rats as a feed conservation and disease control measure.

#### NUTRITION

1) *Feed Adequately without Wastage to Conserve Scarce Ingredients.*—Keep a fresh, adequate supply of high-quality laying mash before the flock at all time. Avoid wastage by using properly constructed feeders and not filling them too full.

2) *Provide Sufficient Green Feed for Housed Layers.*—Provide green feed—up to 5 pounds per hundred birds per day, unless the egg mash is fortified with the essential vitamins. When this is not available, keep good quality alfalfa or other legume hays in racks or bales before the birds at all times.

3) *Maintain an Adequate Water Supply.*—Provide a constant supply of fresh, clean water, warmed slightly in extremely cold weather to encourage greater water consumption. Place the water containers on wire or slatted platforms near the mash hoppers.

4) *Provide Oyster Shell and Grit.*—Keep a clean supply of oyster shell or other satisfactory source of calcium, and granite grit before the birds at all times.

5) *Feed a "Noon Lunch."*—About noon feed all the mash, moistened with water or skim-milk, or mash pellets that the birds will consume in a half-hour. This practice helps maintain body weight and supports high egg production, especially in the fall and winter months. This practice likewise aids in maintaining satisfactory production during the summer months.



## DISEASE CONTROL

1) *Cull Frequently and Regularly.*—Cull frequently and market immediately to conserve feed and poultry meat, to lower mortality, and to improve egg production per bird. When birds are in heavy production, cull at night with the aid of a flash light, to remove unprofitable individuals.

Occasionally, it may be advisable to catch the whole flock, using a portable wire enclosure or catching crate, so that each bird may be examined.

2) *If Disease Occurs, Secure an Early and Accurate Diagnosis.*—Hold losses in hens and eggs to a minimum by acting promptly when disease strikes. A mistake in diagnosis may result in the application of ineffective control measures; therefore, obtain a prompt, accurate diagnosis as the first step in controlling disease outbreaks.

3) *Properly Dispose of Dead Birds.*—Remove casualties from the laying house promptly, and completely burn or deeply bury—daily. Do not permit dogs or other animals access to dead birds.

4) *Utilize Proper Management to Prevent Losses from Colds.*—Since infectious colds spread from recovered old birds to incoming young birds (even though the old birds may show no symptoms), dispose of all old stock, especially if they are infected with, or have recovered from, infectious colds. Valuable breeders may be retained by confining them to well separated buildings and yards.

If birds become infected with colds after they are housed, check ventilation and litter. If the litter is very wet, remove and replace with a deep, highly absorbent litter; if only damp, stir the litter and add about an inch of absorbent, dry litter, and stir every few days. Encourage birds to eat by feeding a mash, moistened with water or skimmilk, or mash pellets, and succulent green feed, one or more times a day. When the flock has recovered, market the unprofitable birds.

5) *Control Avian Tuberculosis.*—Annual losses from this disease are estimated at 6 million dollars in poultry flocks and about 4 million dollars from affected pork products, in 12 midwestern states. Unless pullets can be housed entirely separately from the old birds, sell all old stock except breeding flocks at the end of their first laying year (about 18 months of age), for slaughter only. On farms where avian tuberculosis has been definitely diagnosed, test breeding flocks for tuberculosis, do not permit the chickens and hogs to run together, and employ rigid sanitation.

6) *Examine Birds and Houses Monthly for Evidence of Lice and Mites.*—Examine a representative number of birds at regular inter-

vals—monthly or oftener—and, if lice are present, either treat the birds with a reliable delousing agent or paint the roosts with a reliable nicotine preparation, being certain to follow the manufacturer's directions.

Examine roosts, droppings boards, and nests regularly for evidence of mites. Eliminate these parasites by removing litter, nesting material, and droppings and applying an oily mixture to the floor, walls, roosts, droppings boards, and nests.

7) *Reduce Losses from Fowl Paralysis by Frequent Culling.*—At regular intervals, such as when culling, remove all lame birds and those with a definite gray iris (eye), provided the pupil is irregular in outline instead of evenly oval or well rounded. Since some gray eyes are normal, remove only those birds with irregular pupils.

Affected birds may continue to lay for a period of time, but eventually birds so infected secure less feed and water, lose weight, and go out of production. Consequently, as a feed and poultry-meat conservation measure, the prompt removal of these birds is essential.

8) *Prevent Losses from Cannibalism.*—Avoid crowding, provide cross ventilation during warm weather, and keep the birds busy by providing deep litter, whole oats, green feed, legume hay, or other suitable roughage. If cannibalism is present, it may be necessary to use a satisfactory, mechanical anti-pick device on each bird.

## Breeding Supplement

SUGGESTIONS TO FLOCK OWNERS  
PRODUCING HATCHING EGGS

1) Use U.S.R.O.P. or U.S. Certified males, or males of equivalent breeding, from flocks that have been family-tested for livability and other desirable factors.

2) Introduce new breeding stock as day-old chicks, rather than partly-grown or mature stock, as a disease prevention measure. At least 3 cockerel chicks should be started for each mature cockerel to be used in the flock.

3) Practice careful selection of breeding males for rapid feathering—at hatching time by wing development—or at 10 days by tail development. Select for feathering on the back, outstanding growth, and broiler quality at 4 to 12 weeks; and for vigor, sexual development, and standard qualities at 20 weeks.

4) Provide 8 mature males for each 100 females of the heavier breeds, such as Plymouth Rocks and Rhode Island Reds; and 6 mature males for each 100 females of the lighter breeds, such as Leghorns.

5) Do not add additional males to the flock during the breeding season unless absolutely



necessary. New males are often attacked by the others and sometimes killed. The fighting thus started may cause a drop in fertility. Frequently new males can be added at night, with little or no fighting resulting. The number of males to each 100 hens recommended in paragraph 4 should be enough to take care of normal losses.

6) For fall chicks, use early hatched, well matured males.

7) Feed a breeder-mash which contains the necessary vitamin units to obtain good hatchability of eggs and livability of chicks.

8) Give the breeders succulent green feed when available. Green feed is a good source of vitamin A and riboflavin, which are important hatchability factors. If fresh green feed is not available, place a bale of properly cured, bright-colored alfalfa in each pen, or feed from a rack.

9) Cull throughout the year, removing any birds that lack vitality, lose weight, or show evidence of low production. To distinguish the good from the poor layers, place red spiral leg bands on those that commence laying first, white bands on those that lay at a good rate as determined by rate of fading of the yellow pigment, blue bands on those that are persistent layers, and black bands on those that become broody. The birds with red, white, and blue bands are the best layers and are the ones that should be kept a second year for the breeding flock. They should be housed entirely separately from the pullets.

10) Dispose of any birds that develop symptoms of fowl paralysis, such as blindness, distortion of the pupil of one or both eyes, or lameness.

11) Control parasites. A heavy infestation of lice or mites results in loss of weight, fertility, and eggs.

12) If eggs are hatching less than 70 per cent, something is wrong. Check males and hens for physical condition and evidence of disease. Check feed, feeding, and other management factors. Determine whether fertility is normal.

#### SUGGESTIONS TO HATCHERYMEN

1) Use the best flocks of each breed as key flocks to provide chicks for supply-flock replacement each year.

2) See that key flocks are headed by U.S.R.O.P. or U.S. Certified males, or males of equivalent breeding, from reliable breeders of strains that have been family-tested for livability, rapid growth, fast feathering, egg size, and production.

3) Reduce the chances of introducing disease by buying hatching eggs or day-old chicks for flock-improvement purposes, rather than mature or partly grown stock.

4) Have key flocks consist of pullets from a strain which has been family-tested for livability, or from hens that have survived mortality and vigorous culling.

5) Replace all hatchery-supply flocks with chicks from key flocks each year, and contract with the flock owners in advance to buy their eggs.

6) Keep hatchability records on supply flocks and show each flock owner how his eggs are hatching in comparison with the eggs from other flocks. Paying for eggs on a hatchability basis will encourage owners to take better care of their flocks.

7) Select vigorous birds for all supply flocks that are free from symptoms of fowl paralysis and other diseases.

8) Go back to the same breeder each year for cockerels to head key flocks if results have been satisfactory with the stock from that breeder, rather than introduce some outside strain from another breeder. (See Paragraph 8, under "Suggestions to Pedigree Breeders.")

9) Gather data on the performance of chicks in the hands of customers. Ask for reports on chick livability to 3 weeks of age, first year's egg production, and laying-house mortality.

10) Keep records on the source of the chicks sold to each customer. If trouble develops it is important to check the flock supplying the eggs.

11) Dubbing both the combs and wattles of males prevents freezing, reduces injuries from fighting, and helps maintain good physical condition, all of which are essential to good fertility.

12) Maintain rigid sanitation at the hatchery. As a precaution against the introduction of disease, a vigilant sanitation program is fundamental to hatching success. Briefly, clean incubators and other equipment, clean rooms, clean clothes, and clean operators are essential to producing healthy chicks.

#### SUGGESTIONS TO PEDIGREE BREEDERS

1) Establish 8 or more single-male breeding pens. A relatively large number of matings is necessary for progress in family selection.

2) Trap-nest at least 40 daughters from each sire and 8 daughters from each dam.

3) Maintain an accurate record of any pedigreed birds culled, showing the date and cause of removal. Culling distorts the sample and, in studying family records, should be taken into consideration.

4) Evaluate the breeding worth of sire and dams on the basis of the hen-housed average egg production of their daughters. This is computed by dividing the total number of daughters trap-nested into the number of eggs

laid during the year. The hen-housed average is a good combined measure of production and livability.

5) Wing-band and brood all the chicks from single-male matings for at least eight consecutive weeks of hatching, to provide an adequate sample for studying family performance. Keep all the cockerels through broiler age and all of the females through their first laying year.

6) Pedigree as many other chicks as practicable from both single-male and flock matings, and keep livability records during the rearing period and in the laying house. Trapping is not necessary to progeny-test dams for livability—merely keep a record of the wing-band numbers of the progeny that die.

7) Keep a hatching record on a definite number of eggs from each dam in flock matings to obtain a measure of hatchability. The larger the sample, the more accurate the measurement. Hatchability is the result of livability during the incubation period.

8) Use a "closed-flock system" of mating. Do not introduce other strains except on a trial basis. In establishing desirable genetic factors, greater progress usually can be made within the breeder's own stock than by introducing stock from another breeder. While new stock sometimes results in marked improvement the first year, this may be lost in future generations because of genetic segregation.

### Control of Stray Dogs Recommended as Food Conservation Measure

One of the subcommittees appointed by the Pet Animal Industry Advisory Committee of the War Food Administration has to do with the control of our canine population by appropriate breeding controls. The following release, issued July 1, 1943, tells of the first step taken by the subcommittee in carrying out its program:

Tenders of victory gardens may relax. So may the wartime raisers of poultry. The reason is that a campaign is now rolling to bring under control the bands of stray dogs that have been sabotaging some of the aims of the War Food Administration.

The first move came with the appointment and organization in June, 1943, of a Pet Animal Industry Advisory Committee at Washington. Under this authority, the Breeding Control Committee, headed by Henry D. Bixby, executive vice-president of

The American Kennel Club, has laid out a six-point program whose first consideration is the unwanted stray dog which has been hampering the war effort through destruction of food items.

To combat this evil, encouragement and aid will be given local enforcement officers throughout the nation in their effort to carry out the dog license laws. Concerted effort will be made to round up the wandering strays, and owners of dogs are exhorted to keep their pets either in secure enclosures or on leash at all times.

The members of the Committee believe that any owner who loves and takes pride in his dog should strive to keep him under control both day and night. Particularly, the dog should not be let out and forgotten. The master should know where his pet is at all times. The Committee believes this good advice at any time, but especially now when so many patriotic people are blistering their hands and bending their backs to raise items that will supplement the food supply of the family.

This program is also aimed at conserving for worthwhile uses the canine strength of the nation at a time when Uncle Sam has need of so many big, healthy dogs in the Corps K-9.

### Argentina and Veterinary Service

What is never mentioned in the discussion on the Argentine beef controversy is that the big landowners of that country, who dominate its politics, have never supported comprehensive programs of disease control among farm animals. The authority for this statement is none other than Lignière, distinguished French scientist, who spent many years in the Argentine studying foot-and-mouth disease and other farm-animal maladies. The enforcement of strict sanitary measures received meager support from the livestock industry. The country that plays around with farm-animal diseases is its own worst enemy.

We amateur literary critics seldom see much except misspelled words, and we miss some of them.

# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## The Application of Various Surgical Procedures in Veterinary Practice

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THE PRACTICE of veterinary medicine under present day conditions has become so diversified that in attempting to present a paper, one is confronted with the problem of deciding what particular subjects should be discussed. It becomes necessary, therefore, to limit remarks to specific topics rather than attempt to include too wide a field.

In every day practice there are many conditions amenable to surgery. Some of these are of major surgical importance while many are improperly called minor surgical risks. This latter classification should not be used, as too many times conditions classified as minor cases actually develop into major ones.

The purpose of this paper, then, is to review some of the more common conditions of farm animals which respond to surgery and to briefly outline a few of the procedures that should be employed in carrying out these measures. No extensive equipment is necessary, such as an operating table, because a good, clean grass plot is probably the best place for performing operations. Here, one is able to use any type of casting apparatus and with the least danger of injury.

### THE OPERATIVE FIELD

The preparation of the sites of operations is so well described in text books that we

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need not dwell upon this point. The methods differ, and the fields of operation vary so widely that special cleansing may be necessary in different cases.

In the ordinary case, after using clippers or scissors, the area is rubbed by using cotton moistened with carbon tetrachloride, then followed with tincture of metaphan or merthiolate or a 2 per cent solution of iodine in ether. The operator's hands for most of the operations can be properly prepared by scrubbing thoroughly in soap and water and then applying a small amount of 1 to 1,000 alcoholic bichloride of mercury solution. (1 tablet to 1 pint of alcohol.) The use of gloves is advisable although not absolutely necessary.

### ANESTHESIA

The kind of anesthesia used will depend upon the effect and duration desired. No attempt will be made to discuss anesthetics in detail. However, for many of the more common conditions local infiltration anesthesia is usually satisfactory if approved local anesthetics are used. The strength of the solution will depend upon the product used, but usually the range is from a  $\frac{1}{4}$  to a 1 per cent solution.

Ordinarily, in order to accomplish definite localization, one attempts to prevent a too rapid absorption by the addition of a vasoconstrictor. Adrenalin chloride, 1 to 1,000, is used frequently by adding 1 per cent to the anesthetic solution.

For the past few years, we have employed neo-synèphrin hydrochloride instead of adrenalin. A 1 per cent solution is used



and 5 drops are added to each ounce of the anesthetic just before the injection is made. This makes 1 per cent of the vasoconstrictor in the final solution of the anesthetic.

In our experience, this substitute appears more satisfactory than adrenalin chloride as the effect of the anesthetic seems more prolonged.

#### OMPHALITIS

Omphalitis occurs frequently in foals and calves. The scirrhus thickening at the end of the umbilical cord causes concern to the owner. Many times this condition develops about a week or ten days after birth. The diagnosis is easily made. A hard, firm, rather freely movable subcutaneous swelling about 1 or 2 inches in diameter, immediately over the umbilical ring, is easily palpated.

By gently lifting on this mass, a slightly thickened cord  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch in length can be felt extending from its base into the umbilical opening. A small fistulous tract extends from this mass and terminates on the skin surface.

In operating, the only restraint necessary is two farm hands, one who holds the front legs and head and the other the hind legs. When only one helper is available ropes are applied. The anesthetic is injected subcutaneously in a circular or elliptical ring about an inch away from the base of the mass and completely surrounding it. While the anesthetic is taking effect, the hands are again washed in the alcoholic bichloride solution.

One jaw of a pair of forceps is placed in the fistulous opening and the other jaw to the skin. Slight tension is then applied to elevate the mass. A complete circular incision is made around the fistulous opening and about  $\frac{3}{4}$  of an inch away from it. By blunt dissection, one can readily work down to the cord between the pathological tissue and the abdominal wall. This entire mass is removed by severing the cord about  $\frac{1}{4}$  of an inch from the abdominal wall. It is advisable to cauterize this stump by using a small amount of 90 per cent phenol on a probe, which is placed in the central core of the stump and then followed by alcohol.

The stump is covered with subcutaneous tissue, using continuous catgut Lembert sutures. While suturing these tissues, it is advisable to dust powdered iodoform or sulfanilamide on them. This suturing eliminates any possibility of cavity formation and at the same time tends to approximate the edges of the skin and thus facilitate its suturing.

The skin is closed with interrupted, mattress, or continuous lock stitch. The mattress is preferred, either regular or vertical, using linen or silk. In most cases, healing is uneventful. Usually, no after care is necessary.

#### DEHORNING

There is no operation that will impress an owner as much as to see a cow dehorned under the effects of a nerve block.

The point of injection over the cornual nerve is located midway between the base of the horn and the eye. At this point, one can palpate the edge of the frontal bone under which the nerve is located. With a 1-inch, 18- or 19-gauge needle, the injection is made by inserting it downward and inward the full length, keeping as close as possible to the ventral surface of the bone. From 5 to 8 cc. of a 4 per cent procaine solution is sufficient for each side. It is advisable, however, to slightly change the direction of the point of the needle several times while the injection is made in order to thoroughly infiltrate around the nerve. It has been our custom, where large numbers are dehorned, to use stocks and inject cattle in groups of four or five. Then dehorn in the same order. This allows sufficient time for complete anesthesia to take effect. Either the clippers or saw may be used, although the latter is preferred.

Each horn is removed by starting from the medial side and sawing at the proper angle until it is completely sawed through. This done, the horn, of course, will drop over, a small flap of skin acting as a hinge. In this tissue, one finds the main blood supply, the cornual artery. The flap is severed with a scalpel sufficiently far from the base of the horn so that the artery can be grasped with hemostats. It is then twisted several times after which the hem-



ostats are released. When there are no flies, we immediately release each animal and give no further treatment.

The most satisfactory procedure for calves is to cauterize the horn as soon as the "horn button" makes its appearance. The main point to remember here is to avoid any possibility of the caustic secretion getting into the eyes. If one wipes up the secretion at the beginning there usually will be no danger. It is also advisable to place petrolatum around the base of the horn. This will also limit the action of the caustic.

#### TEAT SURGERY

Any veterinarian who has had an appreciable amount of cattle practice will sooner or later encounter various udder conditions which require the use of certain surgical procedures as the only practical means of relieving them.

Probably, no place in veterinary practice is it more necessary to establish aseptic conditions than in surgery of the teats and udder.

Among pathological conditions occurring frequently is the "spider teat." We have found the various types of instruments used within the teat canal to be disappointing and as a result, we operate through the side of the teat.

The usual preoperative measures are employed to prepare the field for operation plus an extra painting of the entire teat with tincture of metaphen. The flank on the side of the operation is also washed thoroughly with a mild antiseptic solution. An added precaution is to take a long piece of 30-inch wide unbleached muslin soaked in an aqueous antiseptic solution and wrap it entirely around the cow's body. A small hole is made in the wrap to allow the teat to pass through.

Infiltration anesthesia is used. Two to 3 cc. are usually sufficient. The injection is made with a 1/2-inch, 24- or 25-gauge needle directly over the fibrous mass. An incision about 3/4 of an inch long is made parallel with the long axis of the teat and is extended downward to and including the teat canal. At this point, the canal is invaded only enough to expose the area of fibrosis,

which is carefully dissected with fine-pointed scissors.

The incision is closed with deep interrupted sutures of No. 1 noncapillary braided silk. They are placed rather close together, the average distance between them being about 3/16 of an inch; 5 or 6 are sufficient. They should extend down to the mucous lining of the duct but not include it. When properly placed, these sutures approximate the subcutaneous tissues in such a way that the free edges of the teat duct turn toward the lumen and heal without leaving a stenosis. This method expedites matters and is as satisfactory as where the figure-8 buried suture is used. All sutures remain for about a week during which a milking tube of the Bowen type is used. It is preferable to do this operation during the lactation period.

A point worth mentioning, in this or any operation upon the teats and udder, is suture and wound infection following the operation. If all aseptic precautions are carried out there is not likely to be bad results, provided there is no staphylococcal mastitis present. Even with *Streptococcus agalactiae* in the quarter in a quiescent state one can usually expect good results. However, in dealing with the staphylococcal type, the results are often discouraging as suture infection frequently occurs. In one case, in particular, considerable sloughing resulted. Sutures were removed as well as the necrotic tissue. The wound edges were scarified and new sutures inserted. In about a week, the sloughing recurred. At this stage, the wound was left open and treated accordingly. Finally, the fistulous tract completely closed.

Other teat operations are for teat fistulas and hard milkers. Here, the same general principles are involved. The fistula operation is performed by completely dissecting the tract and closing the incision as with spider teats. For the hard milkers, we are all acquainted with the manner of severing the sphincter muscle.

A precaution which sounds very practical and reasonable, but one which I have not tried, is to make an intramammary injection of a weak antiseptic solution such as highly diluted Lugol's solution immediately

after the quarter is milked out. This is done just before performing the operation.

#### EPIDURAL ANESTHESIA

We do not use this method of anesthesia as frequently as we should in sterility and obstetrical work. It simplifies many difficult cases.

It is gratifying in rectal palpations and all types of obstetrical work to be able to do a complete job. We often encounter certain cows that are hard to examine owing to excessive straining and abnormally placed genital organs. The uterus often is advanced forward, partly in the abdominal cavity, due to adhesions. Oftentimes, one will find a uterus rotated as much as 90 degrees on its longitudinal axis, either to the right or left. Many times, when diagnosing early pregnancy, it is advisable to retract the uterus. This is accomplished by using cervical forceps. Here again, epidural anesthesia is beneficial. In all these cases, just enough anesthetic should be used to prevent straining and still keep the animal in the standing position.

For about an 800-lb. cow, 8 cc. of a 2.5 per cent solution of procaine are usually sufficient. Larger cows will require up to 12 or possibly 15 cc.

No doubt, many of you have seen cases of eversion of the uterus before epidural anesthesia was used. There is no comparison between the amount of work necessary in replacing the uterus then, and as it is done now under this method.

#### CESAREAN SECTION IN CATTLE

Cesarean section in cattle is an operation that no veterinarian should hesitate to do when it is advisable. It can be done on almost any farm and practically no extra instruments are necessary beyond what the average practitioner would have.

If one expects to be successful there are several things that must be ascertained and decided. It is always imperative to make a thorough examination. This, of course, should be done at the very beginning. The examination is of the utmost value to determine whether some inexperienced person has mutilated, or even punctured, the uterus. These facts should by all means be

conveyed to the owner and must be considered when rendering the prognosis. If not called early, and if injuries and extensive lacerations exist, the prognosis must be guarded. Conversely, the sooner after labor starts that one decides an operation is advisable, the better the prognosis will be. In these early cases, the uterine contractions are powerful and, therefore, better and quicker involution occurs. A long standing flaccid uterus is always a bad sign.

As far as the operation itself is concerned, all the usual preparations should be made. Regarding anesthesia, one may use epidural, paravertebral, local infiltration, or chloroform. Chloral hydrate, either given through the stomach tube or intravenously, may be used in combination with any of the above methods. The first two are the ones most often used. Either the flank or the ventral incision may be chosen.

Several points in particular should be kept in mind during the operation:

1) A liberal uterine incision will prevent lacerations which require extra suturing.

2) Seepage can be avoided by bringing the uterus far enough through the muscle and skin incision to plug it and by packing off with towels. Most of the time this packing is not necessary.

3) Carefully close the uterine incision to avoid seepage, by using a suture that inverts the serous surfaces. Two rows of sutures are usually employed in which the second buries the first. A continuous Lembert or Cushing, right-angle suture may be used. The latter is preferred as it closes the uterine incision much more quickly and makes just as firm a union.

4) The peritoneum should be carefully closed. The fascia can also be included with the same sutures. In suturing the muscle layers, only enough sutures are placed to eliminate any cavities.

5) Skin sutures will vary, depending upon the operator. Interrupted, continuous, mattress or a lock stitch may be used with about equally good results. The interrupted mattress is a very satisfactory skin suture. All are removed in about a week to ten days. Vaseline is an excellent preparation to keep on the sutures as well as the incision.

# Chick-Embryo Diluter Versus Phosphate-Egg Yolk Buffer in Artificial Insemination of Cows: A Preliminary Report

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THIS REPORT shows results following the use of University of Illinois chick-embryo semen diluter,<sup>1</sup> marked "1-16", as compared with those of the regularly used phosphate-egg yolk buffer solution,<sup>2</sup> in artificial insemination of dairy cattle owned by members of the Northern Illinois Holstein Breeding Association. Females were not selected, but merely comprised the calls of the period when these particular bulls were used.

The data are based on records to May 5, 1942, and the animals are considered settled solely on failure to show recurrence of estrus by that time. None have been examined for pregnancy by palpation.

The bull, King, is Oak Bend King Bess Perfection PBH 808860, 2½ years old, and a very sure animal. He has been in regular use in the Association since 14 months of age. King had been given one, 1-Gm. dose of ascorbic acid Jan. 26, 1942, when the other animals were treated. His semen samples have always been of good quality, and usually 11 to 14 cc. are obtained from 2 ejaculations. By Underbjerg grading, his spermatazoa usually rated 90 or 95 with an occasional 85 specimen. Also, the diluted samples are usually longer-lived and show greater motility, when older, than do those of the other bulls.

The bull, Pathfinder, is Montvic Pathfinder 21st PBH 743481, 5 years old. In use since April, 1940, with the organization of the Association, he was in pasture in the summer of 1941, returning to regular service in the fall. He had been given two doses of 2 Gm. each of ascorbic acid on Jan. 22 and 26, 1942. Pathfinder's semen samples are often smaller in volume, rang-

ing from 8 to 14 cc. from 2 ejaculations, and occasionally show less motility than King's. The former condition, I attribute to his moodiness in drinking water: sometimes he is erratic and will not drink when offered water. However, he is a fairly sure bull, and although his samples do not seem to possess the longevity of King's, 16 of the

TABLE 1.—Motility Grading of Semen Samples

DATE	AGE OF SEMEN		CHICK- EMBRYO DILUTER†	PHOS- PHATE- EGG YOLK BUFFER
	HOURS	DAYS*	(1 : 4)	(1 : 4)
KING'S SEMEN‡				
1/30	Fresh	0	90	90
1/31	24	1 + 0	82	80
2/1	48	2 + 0	80	75
2/2	72	3 + 0	80	72
2/3	96	4 + 0		
2/4	120	5 + 0	55	40
2/5	144	6 + 0	40	30
2/6	168	7 + 0	35	30
2/7	192	8 + 0	35	30
2/8	216	9 + 0	20	15
2/9	240	10 + 0	15	10
2/10	264	11 + 0	4§	4§
2/11	288	12 + 0	2§	2§
PATHFINDER'S SEMEN‡				
2/12	Fresh	0	90	90
2/13	24	1 + 0	75	80
2/14	48	2 + 0	50	60
2/15	72	3 + 0	30	40
2/16	96	4 + 0	20	30
2/17	120	5 + 0	5	10
2/18	144	6 + 0	0	10

\*Days at 9 a.m.

†University of Illinois chick-embryo diluter.

‡King's semen collected Jan. 30, 1942, at 9 a.m.;

Pathfinder's semen collected Feb. 12, 1942, at 9 a.m.

§Very few alive.

21 head inseminated by each did not show estrus later. Table 1 shows the motility variations of each from stored samples. Both animals worked satisfactorily with

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<sup>1</sup>Furnished by Dr. Robert Graham, University of Illinois.

<sup>2</sup>Prepared from Abbott's Buffer Capsules, distilled water, and egg yolk.

artificial vagina in the collection of samples.

Semen was collected from King on January 30 and was carried over and used January 31 and February 1, inclusively, also. Twenty-one head were inseminated, 11 with buffer and 10 with chick embryo. The collection was made at 9 a.m.; 12 cc. were obtained from 2 ejaculations and kept at 48 F. Both embryo and buffer were diluted 1 : 4. Of the 21 head, 16 (76.19%) apparently settled. With chick embryo, 8 of 10 (80%) settled, and with buffer, 8 of 11 (72.72%) settled.

On February 12, semen was collected from Pathfinder; the yield was 12 cc. from 2 ejaculations. It was also used on February 13 and February 14, inclusively. As there was not sufficient chick-embryo diluter left for a 1 : 4 dilution, the remainder was pooled to make a 1 : 3 solution; the phosphate buffer was made 1 : 4 as usual. Because of this, 13 head were inseminated with phosphate-buffered semen, but only 8 head with chick embryo-diluted semen. Of the 21 inseminated, 16 (76.19%) apparently settled. With chick embryo, 7 of 8 head (87.50%) apparently settled, and with buffer, 9 of 13 (69.23%) settled.

For microscopic examination, a few drops of M/15 sodium citrate solution were added to a few drops of each type of diluted semen, and it was graded by Underbjerg's scale, low dry, at 100 to 102 F. This citrate solution was used as it cleared the field and improved visibility of the spermatozoa in the diluted samples. With both egg yolk and chick embryo, a haziness is created which impairs motility grading.

King's samples with chick-embryo diluter showed a better motility than in phosphate buffer at any stated hour up to the tenth day (240 hours. See, table 1). However, with Pathfinder's samples the reverse was true, and the phosphate-buffered semen graded slightly better than the chick embryo-diluted semen, from the second day on. The first day's grading on all samples was on fresh, undiluted semen; both bulls rated 90. None of either bull's semen was used for inseminating purposes after the third day, but was checked for records only. King's samples in both diluters had some

TABLE 2.—Results of Inseminations with Semen Samples

COW No.	DATE INSEMINATED	AGE OF SEMEN (HR.)	DILUTER*	RE-MARKS*
KING'S SEMEN				
1	1/30	1	B	+
2	1/30	2	E	+
3	1/30	2.5	B	+
4	1/30	3.5	E	+
5	1/30	4.5	B	+
6	1/30	5.5	E	0
7	1/30	7.5	B	+
8	1/31	1 + 1	E	+
9	1/31	1 + 2	B	+
10	1/31	1 + 3	E	+
11	1/31	1 + 5	B	i
12	1/31	1 + 7	E	+
13	1/31	1 + 7.5	B	ii
14	2/1	2 + 1	E	iii
15	2/1	2 + 1.5	B	iv
16	2/1	2 + 2.5	E	+
17	2/1	2 + 2.5	B	+
18	2/1	2 + 3	E	+
19	2/1	2 + 4	B	+
20	2/1	2 + 5	E	+
21	2/1	2 + 7	B	+
PATHFINDER'S SEMEN				
1	2/12	1	E	+
2	2/12	2	B	v
3	2/12	2	B	+
4	2/12	3.5	E	+
5	2/12	4.5	B	vi
6	2/12	7	B	+
7	2/12	7	B	vii
8	2/12	8.5	E	+
9	2/12	9	B	viii
10	2/12	10	E	ix
11	2/13	1 + 2	E	+
12	2/13	1 + 3.5	B	+
13	2/13	1 + 4	E	+
14	2/13	1 + 5	B	+
15	2/13	1 + 5	B	+
16	2/13	1 + 7.5	E	+
17	2/14	2 + 1	E	+
18	2/14	2 + 2	B	x
19	2/14	2 + 4	B	+
20	2/14	2 + 5	B	+
21	2/14	2 + 5.5	B	+

\*B = buffer diluter (phosphate); E = embryo diluter (chick); + = settled May 5, 1942; 0 = aborted and rebred May 2, 1942; i = repeated and rebred Feb. 17, 1942; ii = repeated and rebred Mar. 23, 1942; iii = repeated and rebred Feb. 20, 1942; iv = repeated and rebred Feb. 24, 1942; v = repeated and rebred Mar. 6, 1942; vi = repeated and rebred Mar. 4, 1942; vii = repeated and rebred Mar. 10, 1942; viii = repeated and rebred May 2, 1942; ix = repeated and rebred Mar. 7, 1942; x = repeated and rebred Mar. 25, 1942.

AUTHOR IDENTIFICATION TO COME.



live spermatozoa at twelve days (288 hours), although grading was low, about 2 at this time. In Pathfinder's case, the chick-embryo diluted semen was dead at six days (144 hours), while the semen still rated 10 in the phosphate-buffered solution.

#### SUMMARY

1) Results of use comparing University of Illinois chick-embryo semen diluter with phosphate-egg yolk buffer in artificial insemination of dairy cattle of members of the Northern Illinois Holstein Breeding Association are stated.

2) Semen from 2 bulls was collected and divided, and some was processed with each diluter. Twenty-one animals were inseminated from each bull's sample.

3) Data are presented showing motility and longevity of samples, recording animals apparently settled as of May 5, and listing animals rebred.

4) Each bull settled 76.19 per cent, or 16 of 21 head inseminated.

5) Chick-embryo diluter graded better with King's and poorer with Pathfinder's semen samples.

6) From King, chick embryo-diluted semen settled 80 per cent of those inseminated, while phosphate-buffered semen settled 72.72 per cent.

7) From Pathfinder, chick embryo-diluted samples settled 87.50 per cent of those inseminated, while phosphate-buffered semen settled 69.23 per cent.

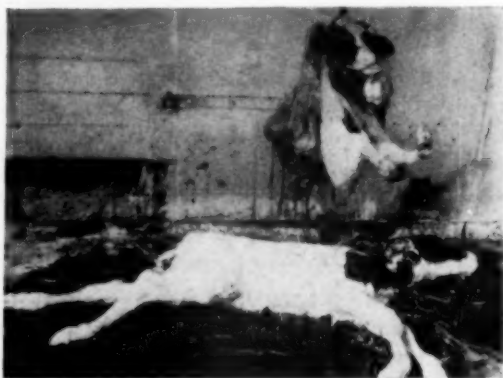
#### The Local Use of Flavines

The coming of the sulfa drugs, gramicidin, and penicillin have revived interest in the acridine dyes in local wound treatment. Acriflavine, proflavine, diaminoacridine are again being discussed in recent medical literature. Russell and Falconer (*Brit. J. Surg.*, Jan. 1941) regard proflavine better than sulfonamide drugs in gas gangrene, and others have found acriflavine and diaminoacriflavine (tryproflavine) useful in their right place. In other words, the value of these dyes which

have won favor in veterinary surgery needs reclassification before they are discarded entirely in favor of the sulfa compounds, some of which we already know have been overrated in certain infections where the flavines had rendered yeoman service in the past. Moreover, the internal use of these drugs has not been as critically studied as the sulfonamides.

#### Twin Calves: Not Identical

From V. W. Zuercher (OSU '36), Orrville, Ohio, comes a report of twin Holstein-Friesian calves of which one was of normal development and the other a monster, class-



ified as a schistosomus reflexus (cleft body). The two are shown in the illustration. The twain were the products of artificial insemination. The dam was a first-calf heifer inseminated Jan. 14, 1942, and was delivered by cesarean section Oct. 31, 1942. The heifer recovered from the operation and was rebred artificially Dec. 16, 1942, and again Feb. 8, 1943 when she became pregnant for the second time.

In France, infant mortality has mounted to an unprecedented peak. Pellagra, scurvy, rickets, mange, and semi-starvation rage among the town folks. And yet, allegiance to political parties is so strong that the organized maniacs, *outré Rhine*, find this suffering population to be "easy picking."

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# CLINICAL DATA

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Pyrethrum, one of the kings of the insecticides, kills insects by contact, not by ingestion.

Vitamin C synthesis is a general metabolic function, not the function of any particular organ, according to the *Journal of Biochemistry*.

Chorio-allantoic membrane of the chick embryo is employed in testing the virulence of *Mycobacterium tuberculosis* (human).—*From the American Review of Tuberculosis*.

Atabrine, synthetic substitute for quinine, is being made at the rate of a billion tablets a year. Whether atabrine is microbicide against microbial pathogens in animals remains to be determined.

Proflavine, discarded along with the other flavines in local wound treatment with the coming of the sulfa drugs, is staging a comeback. None such, is the rating given to the flavines by British research workers.

In more ways than one, Russian science can be credited for having enabled the population of Leningrad to stand the long siege of that city. Mass production of vitamin C from pine needles and certain grasses discovered by biochemists prevented the high incidence of scurvy which would otherwise have destroyed its defensive manpower.

Vaccination against human influenza with the complex vaccine prepared from chick embryo inoculated with influenza virus A and canine distemper virus strain X reduced the incidence of influenza during epidemics in Florida and Alabama.—*From Public Health Reports*, Sept. 19, 1941, p. 1861.

Clipping cows and wiping the udder with chlorine solution before milking are inexpensive methods of reducing the bacterial count of milk, says Bryan of Michigan State College in the *Country Gentleman*.

Instead of crowding brooderhouse capacity in the effort to increase poultry production, it would be better to run two broods of chicks through the houses consecutively, says the *Poultry Tribune*.

Fluorine, notorious cause of mottled enamel when taken in drinking water at an early age, if the concentration is high, was recommended as a preventive of caries by Dr. Virgil D. Cheyne of the Indiana University School of Dentistry.—*From Science News Letter*, May 16.

The Western Washington Agricultural Experiment Station recommends a foot bath consisting of a 10 per cent solution of 5 per cent derris powder to repel heel flies. The cows are driven through a vat containing the solution as they go out to pasture. The treatment is not perfect but it does help.

## Heat Prostration Prevention

Owing to the drain of sodium chloride from the blood and tissues by perspiration and other excretions, work animals should be given plenty of salt in summertime. The drinking of large amounts of water to quench thirst is a severe diluent of blood salts, especially in the sweating horse. But in addition to salt, the body is drained of appreciable amounts of thiamin and vitamin C by sweating. The use of these is recommended to prevent heat prostration and heat spasms in men exposed to high temperatures.

## Liver: The Versatile Organ Supreme

AMONG the internal organs of meat-producing animals, the liver which was once known only as the maker of bile, store-keeper of glycogen, and detoxifying watchdog of the blood stream, now stands head and shoulders above the other component parts of the organic mechanism. Once thrown to the dogs in butchering or given away at the butcher shop, liver is now a precious thing to be conserved and produced in greater quantity. A shortage of liver is signalized along with measures for increasing its poundage in the interest of human welfare. Overcoming the shortage is a problem of veterinary science brought about by studies of the physiologists on the one hand, and observations of the meat inspectors on the other. On the farm and ranch, the livers borne in the bodies of their animals are precious gems, inescapable in the profound study of biochemistry, physiology, pathology, pharmacology, and national economics. As described by Frederick<sup>1</sup>, the economic rôle of liver in the commercial whirl of this period is comparable only to its matchless functions in the living organism, witness, for example, its 11 amino acids—half of the total number—contained in the substance of this versatile gland which was once classified as but an accessory organ of the digestive system.

A glance at table 2, shows what the fed-

TABLE 1.—Amino Acid Composition of Liver

Cystine	1.2%	Phenylalanine	6.2%
Arginine	6.0	Threonine	4.6
Histidine	2.0	Valine	3.6
Lysine	4.6	Leucine	11.6
Tyrosine	3.0	Isoleucine	3.5
Tryptophane	1.0		

eral meat-inspection service has to say about the liver situation as it files across the screen of the abattoirs. The figures give a gross idea of the veterinary-medical problem imposed upon the veterinary profession by the increasing demand for the substance of this organ and its precious ingredients.

It is interesting to note, said the author<sup>1</sup>, "that there has been no significant increase in condemnations for abscesses but there has been a steady increase in the trend of condemnations for telangiectasis and "sawdust" conditions. While there was a decided increase for distomiasis (1935-1938), the figures have dropped back to the percentage incidence of 1936."

Being a "hidden" organ that is generally tortured unnoticed in the course of animal production, the liver of animals, in view of its growing importance to mankind, is im-

<sup>1</sup>Abstract of the unpublished portion of a paper by Dr. L. D. Frederick presented at the seventy-ninth annual meeting of the AVMA, Chicago, Aug. 24-27, 1942.

TABLE 2.—Beef Livers Condemned by Federal Meat Inspectors from 1935-1941, Inclusive

FISCAL YEAR	TOTAL CATTLE SLAUGHTERED	CONDEMNED FOR ABSCESSES	NUMBER	PCT.	CONDEMNED FOR TELANGIECTASIS	NUMBER	PCT.	CONDEMNED AS "SAWDUST LIVERS"	NUMBER	PCT.	CONDEMNED FOR DISTOMA (FLUKES)	NUMBER	PCT.
1935	12,869,448	527,848	5.16	212,021	1.68	80,070	.63	98,755	.79				
1936	10,298,273	531,257	5.20	194,637	1.90	69,167	.67	121,591	1.19				
1937	10,900,631	544,576	5.01	193,218	1.78	55,561	.51	126,448	1.16				
1938	9,974,274	521,495	5.25	191,156	1.92	67,078	.68	150,790	1.51				
1939	9,541,238	511,286	5.37	194,874	1.96	70,147	.70	146,066	1.47				
1940	9,560,329	510,858	5.36	199,461	2.00	92,944	.97	138,208	1.45				
1941	10,126,861	527,194	5.20	210,305	2.07	91,813	.90	124,564	1.23				
(Other conditions not included)													
Total	73,211,054	3,674,514	5.02	1,395,672	1.90	526,780	.72	906,422	1.24				

posing important problems in diagnosis, in feeding practices, and in the sanitary control of ambient pathogens everywhere ambushing the domestic animal population. While the many shocks this faithful bulwark of animal life receives during life is overlooked to a considerable extent on the farms and ranches, the story of the liver is well told on the floor of the abattoir by the meat inspectors.

As time goes on, as populations multiply, and as science advances, so goes the work mapped out for the veterinary service.

### Canine Filariasis

The infection is called heart worms disease because the normal predilection of the adult parasite is the myocardium, rarely the



Fig. 1—Illustration 4 of Dr. Hutson's thesis, showing sheath involvement in canine filariasis.

pulmonary arteries. The parasite (*Dirofilaria immitis*), primarily hematzoic,

causes pruritus, circulatory disturbance, endocarditis, cardiac hypertrophy, thrombosis, and even rupture of the heart with general symptoms of lameness, dizziness, depression, difficult breathing, and emaciation. The parasite, however, may be present in large numbers without causing this chain of symptoms. The larvae are transmitted by several species of mosquitoes and common species of dog fleas.

The disease exists in the southern states and Atlantic littoral of North America, the Caribbean area, China, Japan, and eastern Asia.

The presence of the disease in males only, seems to incriminate the sheath as a predisposing factor. The associated pyogenic organisms may account for the intense cutaneous irritation since pus germs alone do not cause pruritus. The irritant seems to be supplied by the *Filaria*. The history, symptoms, and postmortem findings of 5 cases are described. Six photographs show the part played by the sheath as a portal of entrance. [L. R. Hutson, V.S., B.V.Sc., Chief Veterinary Officer, Leeward Islands, B.W.I.: "Studies on Canine Filariasis. Part 2 of a thesis accepted for the degree of Doctor of Veterinary Science, University of Toronto. 19 illustrated pages.]

### Compliment from the Surge Milker

To Babson Bros. Co., Syracuse, N. Y., in a national advertisement of the Surge Milker, the veterinarian is one of the links in the chain of milk production. Quoting: "It is a far cry indeed from the old 'hoss' doctor of grandpa's day to the broadly educated and highly skilled Doctor of Veterinary Medicine who has come to be such a very important link that binds together all the numerous parts of our dairy industry. . . . Busy as he is, he still finds time to keep abreast of the advances in a dozen branches of modern science and every day finds him better equipped with new and useful knowledge. . . ."



## The Angell Memorial Animal Hospital, Boston



The Angell Memorial Animal Hospital is also the headquarters of the Massachusetts Society for the Prevention of Cruelty to Animals and of the American Humane Educational Society. The founder, George T. Angell (Dartmouth '46) (inset), born in Massachusetts in 1823, son of a Baptist minister, was a lifelong advocate of humane work among animals. To him, animals were a part of humanity, his biographer writes in the March (1943) issue of *Our Dumb Animals*. His labor in behalf of animals was continuous from 1868, the date of the founding of the Massachusetts S.P.C.A., until his death in 1909 when provisions of his will laid the foundation for the best

medical and surgical care science can provide for suffering animals. Discourse on its administrative and educational projects one leaves to the humane societies. For the work of its technical staff—its veterinarians—the veterinary profession is thankful. Its gift to the science of animal medicine is incalculable for there the blessings of thoughtful, meticulous, scientific practices are given the "acid test," and willingly reported in the literature, without fanfare or hope of personal reward. Few men in all history have contributed more to the application of veterinary science than George T. Angell.

### Two Cases of Multiple Cutaneous Ulcers in Dogs

The examination of a Cocker Spaniel presented for treatment in March, 1942, revealed: weight 30 lbs., age 2 years, pulse and respiration normal, anemia, temperature 102.8 F., a severe keratitis in both eyes with saucer ulcers near the left medial canthus, funicular otitis of both ears, a slight generalized dermatitis, and purulent discharge from the anal glands. Although

the case seemed hopeless and euthanasia was advised, the owner wanted it treated. Although mine is essentially a large animal practice, the dog was accepted for hospitalization and treated.

Sulfanilamide at the rate of 3.5 gr. per lb. of body weight was given and local treatment consisted of phenylmercuric nitrate solution (1 : 4,000) and urea ointment applied to all affected areas. Arsenic sulfide in 1/50-gr. doses was given for five days. After

seven days, saucer and perforating ulcers appeared in the interdigital spaces, and later these extended to the axillae and along the abdomen to the scrotum. The dog now weighed but 18 lb. Two-gr. doses of sulfathiazole per lb. of body weight and a popular astringent powder were tried, but without sufficient benefit to justify further treatment. The dog was killed without the necessary microscopic examination to determine the nature of the infection.

Case 2, of the same general nature, was met in December, 1942. This was a farmer's Collie, introduced as a genuine sheep dog. The main trouble was canker of the ears, which the owner had treated in various ways for two months. This dog was 3 years old and weighed 58 lbs. Its temperature of 100.6 F., pulse and respiration normal, ear discharge fetid, and suspicious moist areas in interdigital spaces suggested the development of ulcers. On Jan. 4, 1943, examination revealed that there were cutaneous ulcers extending to the axillae and along the sides of the thorax, abdomen, and hip, over the anal glands and base of the tail. The dog was given 110 gr. of sulfathiazole per day, divided in 3 doses, and no local treatment. On January 24, the ulcers were completely healed.

The purpose of this report is to point out that the dose of sulfa drugs employed in man may not apply to dogs.—R. B. Castle, D.V.M., Ithaca, Mich.

### The Handling of Semen for Artificial Insemination

The hot water used in the artificial vagina should range from 110 to 140 F., depending upon the season of the year. Two ejaculations taken every third or fourth day after sexual rest brings the best results. There is little variation in the methods of diluting and storing semen now employed by breeding associations. Either the Phillips (Wisconsin) egg-yolk phosphate buffer or the yolk citrate buffer may be used. The latter, suggested by Salisbury, Fuller and Willett, may be used. The diluter is added to the semen when taken, and fresh eggs are required for making

the buffer, since eggs may undergo changes detrimental to the sperm cells. The temperature of buffer and semen must be alike before mixing. The ratio is 1 part of semen to 3 parts of the buffer. Cool the samples gradually, using double-walled tubes or wrapping the ordinary tube in flannel or other cloth. About 40 F. is the usual storage temperature to be obtained.

The best time to inseminate is during the middle or last part of estrus, injecting from 0.25 to 0.4 cc. of the 1 to 3 semen.

The semen of some bulls can be stored more successfully than that of others. When bulls show fewer than 50 per cent conceptions they should be withdrawn from service. Failures result from lack of sanitary methods such as improper sterilization of the instruments, ill-health, and poor condition of the cows. Cows affected with brucellosis may be difficult to settle, a certain percentage of cows are nonbreeders, and some require several services. A higher rate than 50 per cent of conception or fewer than 2 services are satisfactory breeding records. [G. W. Salisbury, *University of Nebraska: Storing, Packaging and Shipping Semen. Journal of Dairy Science*, 25, (Aug. 1942): 673. Abstract from a paper presented at the thirty-seventh annual meeting of the American Dairy Science Association.]

### Chemotherapy of Avian Coccidiosis

There are two drugs of considerable merit for the treatment of avian coccidiosis: sulfur and sulfaguanidine, each of which is effective (mainly as preventives) against certain species of *Coccidium*, i.e. the Eimerian cycle of Protozoa. For therapeutic study, Levine (*The Poultry Tribune*, Apr. 1943) divides *Eimeria* into two groups: (1) those which respond to sulfaguanidine, and (2) those which respond to sulfur, each at different strength. To be remembered is that the species of *Eimeria* are not uniformly pathogenic. Some are deadly and others are incapable of producing clinically recognizable disorder.

Clan I, or those species which respond to

0.5 per cent of sulfaguanidine in the ration include *Eimeria acervulina*, *praecox*, *mitis*, *brunetti*, *hagani*, and *maxima*. Sulfur is not effective against this group. Clan II includes *E. tenella*, and *E. necatrix*. The former yields to either 1 per cent of sulfaguanidine or 5 per cent of sulfur in the ration, and the latter (*E. necatrix*) to 1.5 per cent of sulfaguanidine or 5 per cent of sulfur in the ration. Both of these drugs are to be considered preventives but not cures, and they prevent only while they are being given. When withdrawn, susceptibility returns. Where a few chicks only are affected, the medication prevents the disease from spreading through the flock. As Levine points out, the chief benefit of this chemotherapy is that it gives the poultryman time to provide noncontaminated quarters.

### Mad Itch

The occurrence of mad itch (= Aujeszky's disease) in swine, described in recent reports by Ray, has more than academic interest. The discovery of new reservoirs of viruses affecting livestock is always important. Mad itch is a terrifying disease in cattle and a fatal one. The victim, stricken with an intense pruritus, wounds itself brutally by rubbing the itching zone. Shope (1931) of the Rockefeller Institute of Medical Research suspected that hogs were the reservoir of the virus which he isolated from the brain of an affected cow. The importance of Ray's report of an outbreak in Missouri hogs lies in the fact that the disease in hogs may be overlooked because difficult to recognize clinically. The extent to which the virus of Aujeszky's disease exists in inapparent form among swine remains unknown, but its probable potentiality in the congested swine population of the Cornbelt is something to keep in mind. The observation is also of value to research on viruses, comparable, for example, to Shope's discovery of swine influenza virus in earthworms.

### Vitamin C and Cows

Wallis, of the South Dakota Agricultural Experiment Station (*Journal of Dairy Science*, May 1943), settles the disputed question of vitamin C requirement in the feeding of cows. Since the early studies of vitamins *per se*, it was generally thought unnecessary to provide cattle with food sources of vitamin C. Before means of measuring vitamin concentrations in the living body had been developed, it was thought that this factor played no part in cattle physiology. When this was disproved analytically, the question of somatic vitamin C synthesis arose. Studies of vitamin C concentration in plasma, and its dynamics, showed that if cattle are independent of this factor, as a food source, their metabolism nevertheless did not share the independence. Definite syndromes of vitamin C deficiency in animals have been determined and if not outwardly expressed in as deadly a manner as scurvy of man, on the long run, it is perhaps no less significant. The difference in animals is that the mechanism of vitamin C production in the body, not its presence in given amounts in the feed, is the subject to study, for, according to Wallis, the elimination of vitamin C in cows far exceeds the intake, even after long periods of experimental privation. In short, enter vitamin C fabrication in the veterinary physiology.

### Tetanus Toxoid Confers Solid Immunity

Since tetanus toxoid came into general use among the soldiers of the Army of the United States, only 4 cases of tetanus occurred since 1941, and none of these had been immunized. The military surgeons have found that in persons immunized with three injections, the use of antitoxin for the wounded is not necessary. The circulating antitoxin after immunization is more significant than that of passive immunization.

Verbal reports on the immunization of military animals with tetanus toxoid are comparably favorable.

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# NUTRITION

MATERIAL FURNISHED BY THE COMMITTEE ON NUTRITION

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## The Proper Use of Protein During the Present Protein Shortage

HAROLD GOSS

*Davis, California*

EVERYONE IS feeling the effects of the protein shortage brought on by the present global war. No one, however, is more keenly aware of this shortage than the producer of livestock. Faced with ever-increasing demands for meat, milk and eggs for our fighting forces, for our armies of civilian war workers, and for our allies, the livestock owner must first find protein to balance his ration and second, utilize this protein with the utmost economy. What is the minimum amount needed for safety? The answer is not simple but depends upon several conditions. The minimum optimum protein level may be defined as the least amount that will produce maximum growth in young animals and maintain a positive balance of nitrogen in those which are mature or reproducing. Any protein fed in excess of this amount is wasted, in the sense that it is being used as fuel and for this purpose could be replaced by carbonaceous food.

Not all proteins have the same value for growth and for maintaining nitrogen balance; there is a different minimum for each. Animal proteins in general, except gelatin, have the highest value; but the greatest shortage is already among them. Naturally, therefore, interest has turned to the vegetable proteins which, unlike most animal proteins, can be produced in a single year. Cereal grains are already furnishing most of the total protein of many rations. To conserve the diminishing animal supply we must consider those plant foods which contain considerable protein and can be grown

locally. The proteins of cottonseed-, peanut-, and soybean-oil-cake meals are highly suited to replace the animal proteins. In a recent report from the protein and nutrition research division of the United States Bureau of Agricultural Chemistry and Engineering, the proteins of soybeans, cottonseed, and peanuts were found, even when compared with animal proteins, to have a high biological value for growth when used as the sole source of protein in the diet. Further, we must not forget the protein value of legume pasture and young grass pasture.

Recently, in connection with the shortage of protein concentrates, opinion has been expressed that stockmen should be restricted in the use of unmixed protein feeds, lest there be waste of those limited supplies in free-choice feeders and in supplementing range grasses. It has been suggested that our available supply of protein concentrates be reserved for commercial mixed feeds, supposedly balanced with other nutrients in a proper ration. Although some poultry producers have followed this practice, since it met their particular needs, opinions differ as to the wisdom of tying up all the protein concentrates in mixed feed. In the writer's opinion, the best results would be obtained by supplementing the home-grown feeds and those already at hand with the minimum amount of protein concentrates that meet the demands for rapid growth, full production, and reproduction. There is no doubt that when concentrates were cheap and plentiful there was waste, as far as protein was concerned. Now, more atten-

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Associate professor of animal husbandry, University of California, Davis.



tion must be paid to growing more protein foods and judiciously supplementing the feeds available.

Minimum protein needs cannot be summarized in brief, since, among other things, there are many variable conditions and types of animals. Many noted authorities give standards, usually with an upper figure for use when concentrates are cheap, a lower figure for use when protein is high. The present emergency, with acute shortage of these foods, introduces another problem. Attention must be turned to increasing the production of vegetable proteins of high biological value and to increasing the usefulness of good pasturage. If the shortage is not relieved, the Government may find it necessary to ration the available supplies, as is done in England, to producers who by their records have demonstrated reasonable efficiency. To avoid this, it will be necessary for every stockman to make a closer study of protein conservation, and to supplement his rations with the minimum amount of protein recommended in authoritative standards.

### Supplying Phosphorus to Farm Animals

Judging from recent reports relative to the supply of phosphorus supplements for livestock feeding, there is still a shortage of this important ingredient. The following recommendations regarding this problem are from a report prepared by the Committee on Animal Nutrition of the New York State Emergency Food Commission. They deserve the consideration of everyone who is working with farm animals.

#### DAIRY CATTLE

With the present shortage of phosphorus supplements, we believe that it is not necessary or advisable to add a phosphorus supplement to the usual mixed feed for dairy cattle, except under the following special conditions. The usual type of grain mixture contains a fairly good phosphorus content, and extensive recent experiments by the Pennsylvania agricultural experiment station have indicated little or no benefit from adding a phosphorus supplement to such a mixture, even when no legume hay is fed for roughage.

In the past, phosphorus supplements have been added to dairy feeds in this district, chiefly as an insurance against a possible de-

ficiency, for extremely high producers or on farms where phosphorus fertilizers have not been used.

It is our opinion that omitting the phosphorus supplement from most feeds for dairy cows for a short time during this emergency will not be at all harmful. Merely adding 1 per cent of ground limestone to dairy feeds without a special phosphorus supplement is advisable under present conditions.

However, we believe it is wise to add the equivalent of 1 per cent of steamed bone meal to calf meals or calf starters, to dry and freshening feeds, to special mixtures for young stock and to fitting rations, if a safe phosphorus supplement can be secured.

Phosphorus supplements used for dairy cattle for a longer period than six months should contain not more than 0.30 per cent fluorine, because dairy cattle are relatively long-lived animals and fluorine is a cumulative poison.

#### POULTRY

As a means of partially meeting the needs of chickens for phosphorus in the present emergency, 1 per cent of raw rock phosphate may be used in rations without the development of harmful effects.

Processed rock phosphate products guaranteed to contain not more than 2 per cent fluorine can be used in amounts up to approximately 2 per cent of the entire ration. Under present conditions, this is in general more rock phosphate than is required to meet the needs of poultry for phosphorus. The amount of steamed bone meal and dicalcium phosphate now being added to chick rations varies from 1 to 1½ per cent and the amount being added to mash mixtures for growing stock and laying hens varies from 2 to 3 per cent. In the case of growing stock and laying hens, the mash mixture represents only about one-half of the entire rations.

In the event that it is impossible to supply a sufficient amount of phosphorus in poultry-mash mixture, it is suggested that the quantity of vitamin D per lb. of chick mash be increased from 360 to 720 A.O.A.C. units and that per lb. of layer or breeder mash be increased from 900 to 1,800 units. The use of larger amounts of vitamin D greatly increases the utilization of phosphorus and thus helps to overcome the phosphorus deficiency.

A level of fluorine as high as 0.035 per cent in the ration for hens will not materially increase the fluorine content of eggs. Results obtained at the University of Wisconsin indicate that even when the ration contains as much as 0.105 per cent of fluorine, the fluorine content of eggs is not increased to the

A.O.A.C. = Association of Official Agricultural Chemists.

point where they would be harmful when consumed by human beings.

#### OTHER LIVESTOCK

Phosphorus supplements are generally not needed in New York for beef cattle, sheep, and horses, if hay land and pastures have been fertilized with phosphate.

The phosphorus requirements of swine are not high, for experiments have shown that a ration containing 0.30 per cent phosphorus supplies enough of this mineral. Since No. 2 corn contains 0.27 per cent phosphorus, on the average, and the phosphorus content of oats, barley and wheat is appreciably higher, it is evident that a swine ration generally has the minimum content of phosphorus if it is a well-balanced ration supplying sufficient protein. This is because practically all protein supplements are higher in phosphorus content than the farm grains.

When soybean-oil meal is used as the chief substitute for animal protein supplements in swine feeding, it may be desirable to add not only ground limestone to the ration, but also a safe phosphorus supplement, if the latter is available. However, the phosphorus supplement is not essential.

#### Sheep-Killing Dogs

If articles published in farm papers about the sheep-killing dog are criteria, dogdom has an unfinished chore to do, namely, take steps to curtail the losses that food production is suffering from stray dogs. At this time when it's all-out to increase food poundage, dog-haters, of which there are many, are having their inning. Taxing dogs in order to provide payment for sheep killed by dogs is not the answer, since such laws are in force in many states, and a dead sheep is not food. In Kentucky, according to *Farm Journal*, 4,000 farmers in 40 counties tax themselves 10 cents per sheep owned to provide the indemnity. The fund is administered by county protective associations. What is quite apparent is that dogdom, in its excellent program of breeding better dogs, is probably delinquent in arousing interest against the stray and half-stray dogs which cause all of the trouble. A dog, like the herd bull, should be kept within the bourne of its own domicile.

Failure of some dog owners to do this cost a Minnesota farmer 43 sheep out of 84 in one night. His letter to *Farm Journal* caused the writing of this note.

#### Hitler Orders Holland Veterinarians to Stay on Their Job

Says a dispatch from London, "Arthur Seysz-Inquart, German commissioner for occupied Holland, has decreed that physicians, veterinarians, dentists, and druggists will be punished severely with penal servitude or death if they strike or slow down in their work, along with other workers." Strikes and slowdowns followed the German order for the reinternment of 400,000 former Dutch soldiers. Similar action has been taken in Yugoslavia, and believe it or not, Hungary is getting sick of the Hitler regime.

#### The Livestock Swing of 1942

With a total of 73,660,000 head, hogs showed an increase of 22 per cent over 1941, or the second largest increase on record. The spring pig crop of 1943 and the total slaughter will far exceed that of 1942, reports indicate.

The number of cattle (all kinds) rose to 78,170,000, an upward swing of 3,000,000 head. The number of dairy cattle increased 2 per cent.

Sheep and lambs declined 3 per cent over the previous record. The total 1942 number was 6,781,000 head.

The downward swing in the number of horses and mules continues. The 1942 decline was 3 per cent, the total number being the smallest in twenty-four years.

The inventory value of American livestock at the present time (1943) is the highest on record.

"Japs use dogs," say the *Dog World*. They bought a large number of dogs from the Germans and used them in underbrush to fight the British soldiers, to protect their snipers. They are described as being of the police dog type.

# EDITORIAL

## Dr. Mohler's Retirement Announced

Although officially endorsed announcement of Dr. Mohler's retirement has just arrived, rumors to that effect have been published and spread by lip to ear from coast to coast. Inasmuch as a professional life already touching its fifth decade must sooner or later come to an end, the historic event was evidently taken for granted.

As the voice of the veterinary profession, however, the JOURNAL was pardonable for not eschewing to signalize rumors on a matter as significant to American veterinary history as the retirement of the Bureau's third chief, who directed animal industry in the United States during a period of unprecedented development. Now that his

retirement is officially announced, the JOURNAL can keep the records in order.

Of Dr. Mohler's work in behalf of America's livestock industry, *The Country Gentleman*, alert spokesman of American agriculture, has this to say:

"Dr. John R. Mohler is soon to retire as chief of the Bureau of Animal Industry. His life work has been devoted to making this country's livestock the healthiest and most productive in the world. All who engage in raising livestock and all the millions who consume the meat, dairy and

poultry products of our farms are the beneficiaries of his labor. He has been, in the genuine sense of the word, a great public servant.

"For more than forty-six years John R.

Mohler has been in the employ of the American people. In that time the greatest advances in history have been made in the improvement of livestock and in overcoming the diseases and hazards to which it is subject. He had a part—and often a directing part—in a large share of them. To an extent matched by few other men he had the complete confidence of all interests in the industry for which he worked. Primarily, this was in recognition of his own ability and the thor-



Dr. John R. Mohler

oughness with which the work of his bureau was performed. But some of it was due to a robust individuality which made him more than just a "Government man."

"One of his first jobs was to help in the eradication of cattle-tick fever, one of livestock's deadliest enemies. Much of the later work, which he was to see end in virtually complete victory, was directed by Doctor Mohler. From then on, the activities in which he participated comprise almost a history of our progress in animal health since 1900.

"Perhaps the most outstanding was the eradication of tuberculosis in cattle. In 1917, about one cow out of every twenty on an average in the United States had tuberculosis. The campaign to stamp out this widespread infection began that year, which was also the year that Doctor Mohler became chief of the Bureau of Animal Industry. Nothing elsewhere ever approached its scale—the testing with tuberculin of all dairy and breeding cattle, the slaughter of those infected and the payments of indemnities to the owners.

"It took a little more than twenty-three years before the last county in the United States was brought on to a modified accredited basis, with infection reduced to less than 0.5 per cent. Also, in that time the human tuberculosis mortality dropped two-thirds, a health gain to which the eradication campaign contributed.

"Few examples of Government efficiency compare with Doctor Mohler's prompt and resolute action in controlling the 1924-25 outbreak of foot-and-mouth disease in California. When it was discovered, he moved in quickly and firmly. A total of 58,791 cattle, 21,195 hogs, 28,382 sheep and 1,391 goats were slaughtered, the premises rigidly quarantined and thoroughly cleaned and disinfected. Along with these farm animals were destroyed 22,214 deer in the Stanislaus National Forest. There was some outcry against the severity of these measures. But they blotted out the foot-and-mouth disease, kept it from spreading to other valuable herds and saved untold millions of dollars.

"It is no secret that Doctor Mohler has been more responsible than any other man for keeping out of this country importations of livestock and possible virus-carrying meats from countries where foot-and-mouth disease is prevalent. Others might see political or diplomatic advantages to such importations. He knows the devastation they might bring.

"Doctor Mohler always liked to have research work follow as simple and practical lines as possible. Typical of this was the now famous McLean County system of

swine sanitation, developed under his direction. This common-sense piece of applied research, growing out of a farmer's letter telling of his losses, has saved millions of pigs annually.

"One of his early assignments in the Bureau was with the Meat Inspection Service. His interest in and later direction of this work has helped to give American meat consumers the best protection in the world.

"He knew how to get along with others and got the willing coöperation of farmers, stockmen and fellow scientists in varied fields. One example was the struggle to control the pullorum disease of poultry, which led to the National Poultry Improvement Plan with its nationwide coöperation among federal and state agencies and poultry raisers.

"His disdain of personal credit was illustrated when he delivered the Kober Foundation Lectureship Honor of the Year address at Georgetown University not long ago. In it he recited in careful detail the fight against brucellosis, or Bang's disease, begun and carried far along under his direction. At the close he said, 'It is the composite product of many hands and minds, yes and of the main lifetime efforts of several workers; I am primarily the narrator.'

Dr. A. W. Miller who has been appointed to succeed Dr. Mohler becomes the fourth chief of the Bureau of Animal Industry.

### The Journal of Comparative Pathology and Therapeutics Re-Established

Founded in 1888 and discontinued in 1940 on account of the illness of the founder and owner, the late Sir John M'Fadyean, this classical veterinary periodical reappears. The first issue to arrive is dated January, 1943, and identified as Volume 53, No. 2, pages 121-198. No. 1 of the volume was published in March, 1940. For practical purposes, resumption may be regarded as of January, 1943, after which, issues for the year (No. 3 and 4) will appear as material becomes available, the editors announce. The editors are: J. G. Wright, T. J. Bosworth, J. T. Edwards, and R. E.



Glover. Papers for publication should be mailed to Prof. T. J. Bosworth, "The Beeches," Berks, Eng., and business matter to Messrs. H. R. Grubb, Ltd., Poplar Walk, Croydon, Surrey, Eng. The subscription price is 6s per number, 15s, 9d, for the three numbers of 1943, and thereafter £1, 1s. per annum.

Readers of English veterinary literature will welcome the reappearance of the *Journal of Comparative Pathology and Therapeutics*, the suspension of which was regarded as a casualty of the war, knowing that the founder, Professor M'Fadyean, had planned for its continuation as early as 1938 when overtaken with illness and ripe old age.

Like the *American Journal of Veterinary Research*, there are no advertisements and material accepted must be "suitable."

## Two State Boards Disagree

The Board of Pharmacy and the Livestock Sanitary Board of North Dakota are quarreling (*Drug Topics*, June 7, 1943) over the sale of what the former calls "veterinary virus" (whatever that is) by drug stores. "There is no bar," this organ argues, "on the selling by pharmacists of human vaccines of the same nature as 'veterinary virus.'" Not knowing what "veterinary virus" is meant, it is not clear with which one of the human vaccines it is compared. One could name half a dozen "veterinary" viruses which, in incompetent hands, could set the North Dakota livestock industry back for several generations, and we wonder just which one of the "human vaccines" druggists of North Dakota sell over the counter for home use.

Someone ought to tell the drug trade that some "veterinary" viruses are real hot and that some kick back at the unsuspecting donor. The Pharmacy Board appears to presume that if something is good for man, animals ought to be glad that druggists condescend to keep it in stock for their benefit. The fact that a bottle of "veterinary virus" in some hands can scatter a lot of disease among the farm animals of a community and beyond, and remove a lot of food poundage which the Livestock Sani-

tary Board strives to augment, seems to be nowhere in the drug trade's program. Boosting total sales seems to be the only argument raised in favor of selling "veterinary virus" to farmers.

In livestock sanitary work, under difficult ecologic and economic conditions, North Dakota has had a glorious history. It has weathered many a storm and won against subversive tactics other states were unable to overcome. Will it be able to overcome the threat of the drug trade—the free-for-all scattering of "veterinary virus," through the instrumentality of its Board of Pharmacy?

## Yanks Fix Everything

After complimenting the "Yanks" stationed in Iceland for the ingenuity displayed in opening coal mines, piping natural hot water into buildings for heat, digging ditches by machinery and many other things, a war correspondent (*Toledo Blade*, June 22, 1943) adds:

Outstanding in the assistance rendered by the Army is the work of the Veterinary Corps. Army veterinarians have made studies of the bacteria content of milk and have improved handling of the product. They have given TB tests to cattle and helped to combat Bang's disease.

When a hog-cholera epidemic broke out last summer, the army veterinarians got serum in by plane, vaccinated the hogs and then prepared a virus for permanent immunity which they taught Icelandic veterinarians how to use.

Moreover, the troops have prepared pamphlets and newspaper articles for the Icelandic press which give the farmers of this northern island the benefits of the most recent agricultural researches.

To save the trouble of evacuation and care, the Japanese shoot to death soldiers too badly wounded to recover, according to press dispatches coming from Australia. Commenting on this practice, *Medical Times*, November, 1942, wonders "whether the euthanasia propagandists in this country regard the practice in the nature of further progress in the application of their teachings."

# CURRENT LITERATURE

## ABSTRACTS

### More Ethics in Education

The shortcoming of the educational system is blamed for the "hellish mess" Hitler's nazification has brought upon the world, along with "the screwy, fanatical indoctrinations of the Japanese." The author believes that too much fuss is made over factual material, instead of teaching how to live, ethics and the science of moral principles. Knowledge will not make a better world unless wisdom is used in its application. No doubt, Al Capone and Hitler possess considerable knowledge and skill. Some students want only to find a way to make an easy living; others to serve humanity. Apparently, the number of the latter is small, judging from the spirit of responsibility displayed. The students are not blamed, because they are but following the antics of their elders, of parents whose clotheslines hang with towels taken from hotels they have patronized, or of families who hold all-night cocktail parties, and seldom think of obeying the Golden Rule of Confucius and Jesus Christ. "As ye sow, so shall ye also reap" is a forgotten proverb. Etiquette is likewise below conventional levels, and boisterous conduct of some students leaves much to be desired. A lesson may be taken from the American Veterinary Medical Association and state associations whose members are complimented by hotel managers for their exemplary decorum during their conventions. Orderliness and general good behavior is the enviable record they have won. The public expect "gloss" and "finish" of professional men. These should be acquired during college life. Since there is not time to teach all this in the regular curriculum, fraternities, sororities, and other student societies should fill the gap. [H. J. Stafseth, *Professor of Pathology, Michigan State College: Wanted: More Ethics in Education. M.A.C. Veterinarian, Winter, 1943.*]

### Canned Goods Vitamin Deficient

Peptic ulcer and ulcerative colitis occur less frequently in Negroes than in whites. A five-year observation showed that ulcers were 8 times more frequent, and gallbladder disease 15 times more in the latter. The discrepancy is attributed to the loss of vitamins in the

canning process. Negroes are not heavy consumers of canned goods.

The loss of vitamin B<sub>1</sub> in canning runs from 5 to 15 per cent in acid products, and may be as high as 80 per cent in alkaline goods. Riboflavin and nicotinic acid (niacin) drop from 5 to 20 per cent, and while vitamin C is retained in some canned foods, it is entirely destroyed in others. [F. K. Boland: *Vitamin Deficiency as a Factor in the Etiology of Surgical Diseases of the Digestive System. Ann. Surg. 115, (June, 1942): 939-944. Abst. Annotated Bibliography Supplement, 1942, Merck & Company.*]

### Inter-Association Council

Milk, meat and eggs are among the protective foods considered essential for maintaining the health, stamina and morale of the armed forces. The United States is called the arsenal of democracy. While the best country in the world for livestock production, maximum use is not made of the knowledge developed by research workers. The use of this knowledge would curtail losses sustained by farmers from insidious causes which resemble more the work of sabotage than the direct annihilative result of warfare. It is not merely sufficient to ask for more animal production without providing suitable methods of handling problems resulting from condensing the animal population. To discuss these problems, the Inter-Association Council on Animal Diseases and Production was formed. The personnel of the Council is:

- H. W. Jakeman, *chairman*, American Veterinary Medical Association.
- L. E. Card, Poultry Science Association.
- W. V. Lambert, American Society of Animal Production.
- G. E. Taylor, American Dairy Science Association.
- Mark Welsh, United States Live Stock Sanitary Association.

An informal session was held in Chicago in April, 1942, during the meetings of the Federation of the American Societies of Experimental Biology. Improving the diet of the American people was a paramount subject involving advice to farmers on the most practical methods of attaining the production goals set for them.

The Inter-Association Council recommended that the National Research Council appoint a committee of animal health for critical study of the situation. This was done, and the committee proceeded to formulate production programs which will be carried out in the near future. The programs consist mainly in advising farmers and animal breeders how to more effectively produce livestock and livestock products.—[H. W. Jakeman, *The Production of Meat, Milk and Eggs to Win the War and the Peace*, *Science*, 97, (March 12, 1943): 244-245.]

### Feeding Fish to Fur Animals

The feeding of rough fish in lieu of other species and other meats needed for human food is a new problem of fur-farming. With the coming of World War II, fur farmers had to find substitutes for red meat. Fox and mink farmers made a hectic search for new feeds, especially for the critical breeding and lactating periods. Mink require a higher percentage of raw meat or fish than foxes. Although experimental work has been done during the past twenty years, data remain meager on the feeding of various kinds of fish. In 1936, Green reported on the feeding of raw fish as a cause of Chastek paralysis in foxes. The cause was linked to vitamin B deficiency. That fact is now accepted. He later (1942) found that raw carp and other fish destroyed vitamin B<sub>1</sub> at a determined rate. The destructive factor was found to be present only in the head, fins, tail, and internal organs, not in the white meat. The Fish and Wildlife Service produced Chastek paralysis in foxes with vitamin B privation, and Spitzer (1941) produced it in chickens. Facts were established in Canada and Alaska as to the percentage of fish that can safely be fed to foxes. Canned fish and fish meal are not causative factors. Chaddock (1939) produced Chastek paralysis in mink by feeding rough fish and obtained recovery by adding vitamin B<sub>1</sub>.

The conclusion drawn is that fish, including the skin and entrails, may cause Chastek paralysis when it constitutes more than 10 per cent of the ration. Cooking destroys the harmful property. [Chas. E. Kellogg, *Fish and Wildlife Service, USDI: Feeding Fish to Fur Animals*, *The National Fur News*, March 1943.]

### Talk About Milk

"Talk about Milk" is the title of a three-cornered conversation that took place in the surgical officer's room of a great hospital in Great Britain. The authors are named but not identified. The *dramatis personae* are (1) the resident surgical officer of the hospital, (2) a

country doctor, and (3) a naval officer, who plunge headlong into the subject of cow's milk and tuberculosis. Pro and con discussions on the relation of the two lead through cow health and pasteurization to the onerous conclusion that mighty little human tuberculosis is of bovine origin, that pasteurization robs milk of vitamins and calcium, that cows should be "vetted" and clinical cases of tuberculosis removed, that too much energy is spent on advocating pasteurization and too little on eradicating the disease (t.b.) itself, and that the crux lies in growing forage plants so healthy that they (the plants) will not only possess resistance to their own diseases but will pass the resistance to the animals that eat them. Obviously, in view of the prominence given to the published conversation, these arguments represent a viewpoint. [Lion J. Picton, O.B.E., M.A., B.M., B.Ch., and W. H. A. Picton, M.A., B.M., B.Ch.: *Talk about Milk*, *Vet. J.*, 99, (May 1943): 132-137.]

### A Field Trial of Crystal Violet Hog-Cholera Vaccine

In order to test the protection afforded by crystal-violet vaccine against field exposure to cholera, a number of pigs were purchased immediately after weaning, the susceptibility of pigs from each litter determined by virus injection, the remaining pigs each given 10 cc. of vaccine (3 different lots were used), and, after periods ranging from nineteen to eighty-one days, 1 or more vaccinated pigs were placed in intimate contact with sick pigs on infected farm premises. The pigs were then observed at weekly intervals for four weeks. In all, 36 vaccinated pigs were exposed in 17 different outbreaks.

There were 533 pigs in the farm herds in which the outbreaks occurred, but since many had been treated with serum and others had been isolated, only 302 farm pigs were considered as proper controls. Results follow:

	No. EXPOSED TO INFECTION			DIED OF SWINE FEVER		RECOVERED FROM SWINE FEVER		RESISTED INFECTION	
	No.	%		No.	%	No.	%	No.	%
Control pigs	302	265	87.8	27	8.9	10	3.3		
Vaccinated pigs	36	1	2.8	4	11.1	31	86.1		

Of the 4 vaccinated pigs reported as having recovered, only 1 was ill; the other 3 had minor reactions.

As a further control, 1 or 2 sick pigs from 15 of the herds were brought to the laboratory and placed in contact with untreated pigs. Of the 17 farm pigs sick when brought in, all but 1 died. With 3 exceptions, penmates contracted



cholera and died. In 2 of the exceptions, penmates were found to be immune. The third was the penmate of the farm pig that recovered.

The authors conclude: "Crystal violet vaccine appears to have afforded a high degree of protection in this series of cases." [H. T. Matthews and T. M. Doyle: *Crystal Violet Vaccine Against Swine Fever: A Field Trial. J. Comp. Path. and Therap.*, 53, (1943): 121-129.]

## BOOK NOTICES

### Brucellosis in Man and Animals

This is a revised edition of a book of the same name by the same author, published in 1939, the successor of *Brucella Infections in Animals and Man* which appeared in 1934, or but thirty years after the British Mediterranean Fever Commission (1904) was established to investigate the cause of Mediterranean (undulant) fever on the Island of Malta where Bruce and others (1887-1892) had incriminated a microorganism contained in goat's milk as the specific factor. The classical work of M. L. Hughes (1892-1897); of Bang (1897) who discovered *Bacillus abortus*, the specific cause of bovine brucellosis; of Alice Evans (1915-1938) who established the identity of brucellosis in the various mammalian genera; of the United States Bureau of Animal Industry—Buck, Schroeder, and Cotton; of Fitch and Boyd of Minnesota; of Birch and Gilman of Cornell; of Traum of California, and of Ward Giltner of Michigan State College who publicized the relationship of animal and human brucellosis, make up the baffling jigsaw puzzle which the author has spent the greater part of his professional lifetime in putting into readable order by means of laboratory researches, clinical studies, incessant consultations, and extensive travels. The only thing we know that is comparable to Huddleson's fact-finding determination are the travels of Nicholas Senn (in the 1890's) to the isolated populations of jungle countries in search of the cause of cancer.

What we mean to say—what every reviewer must say—is that the author has succeeded in clarifying available knowledge on an ubiquitous and complex infection of still unknown potentiality which concerns everybody who comes in contact with animals, directly or indirectly, and, therefore, his work is of particular value to practitioners of medicine in man and animals, producers of animals, and consumers of animal products.

The book is brilliant and readable throughout. If the first three parts (54 pages) are of

but academic interest to the practitioner of human and veterinary medicine, investigators may be assured that years of painstaking work are described therein. The rest of the 379 pages, divided into four parts, an appendix of case reports, and an extensive bibliography, contain information physicians and veterinarians must know to handle this bacillary plague intelligently.

The illustrations are whole-page plates, some of them in color, which add value to the text. Skin eruptions of the arm due to *Brucella* allergy are shown, and the description of this troublesome affliction of many bovine practitioners covers a phase of brucellosis which, to this reviewer's knowledge, some presumably capable skin specialists do not always recognize, forthwith. Brucellosis is slowly creeping into medical literature, thanks to the United States Public Health Service and the investigations of Hardy in Iowa.

Practitioners of medicine in man and animals will do well to read faithfully the contents of this tome. It is an up-to-date monograph limited to truths, not to abstractions, on a subject that touches not only the health but also the food supply of the people. The medical and veterinary professions should be thankful for a book that puts in order the bewildering mass of facts and contributions on brucellosis which have been printed in medical and veterinary literature during the past thirty or forty years. [*Brucellosis in Man and Animals, Revised Edition*, by I. Forrest Huddleson, D.V.M., M.S., Ph.D., Research Professor in Bacteriology, Michigan State College. The Commonwealth Fund, 41 East 57th Street, New York. Cloth. Illustrated. 379 pages. 1943. Price \$3.50.]

### Dictionary of Bio-Chemistry

Anyone who writes or reads medical, biologic, or chemical material will need this new dictionary. It conforms to the changing concept of what a dictionary should be, a descriptive, expository glossary of words and phrases in everyday use by men of science, which does not shirk where an exhaustive treatment of a term is useful. On that account, this book is an encyclopedia that spares no space for important topics and wastes none on trivialities. For example, *alveolus* is disposed of in 5 words, while *amino acid* requires 8 pages to which 29 references are appended. Another revealing contrast is *calorimetry* with its 5-word definition and *carbohydrate metabolism*, which needs 11 pages to define. Nothing significant in biochemistry is slighted.

The material was collected with the collaboration of 24 specialists in the biochemical field



from New England to California. It is, therefore, not a one-man book. Wherever opened (at random), the text arouses admiration. "Here's a book I've always wanted" presses itself upon the mind at the first glance and the delight increases from careful reading of its contents. In our attempt to build up a better and bigger profession through education, enlarging our libraries with useful books, written by men of the upper bracket and edited as carefully as *Dictionary of Bio-Chemistry*, is a fundamental necessity. As of 1943, the subject matter is the very soul of medical progress. [*Dictionary of Bio-Chemistry*. By 24 specialists in that field, edited by William Marias Malisoff, Professor of Bio-Chemistry, Polytechnic Institute of Brooklyn. Cloth. 579 pages. Philosophical Library, Inc., New York. 1943. Price \$7.50.]

### Nutrition Reviews

*Nutrition Reviews* is the name of a new monthly magazine published in the public interest, for professionally trained people. The publisher is The Nutrition Foundation, Inc., Christler Building, New York City. The subscription price is \$2.00 a year, size 32 pages, 10 by 6½ inches, plus covers. No advertisements. The editor is Frederick J. Stare, assistant professor of nutrition, Schools of Medicine and Public Health, Harvard University, and junior associate in medicine, Peter Bent Brigham Hospital, Boston, with offices at 25 Shattuck St., Boston, Mass. Assistant editors, six of them, and an editorial committee of eleven, all unbiased scientists with active university connections, are responsible for keeping the material abreast of the times in the science concerned.

The *Reviews* contains no tiresome details of research work of interest only to nutritionists, but reports their finished work and its place in human affairs with due reference to where the details may be found. To the veterinarian engaged in any branch of animal medicine, this is a "must have" periodical.

### Meat Hygiene

By again revising Edelmann's classical *Text Book of Meat Hygiene*, John R. Mohler and Adolph Eichhorn make another valuable contribution to veterinary literature, at a time when the ground covered is uppermost in mind in the field of animal-food production. Each one of the revisions (seven of them) was well received. The eighth revision will not be an exception, inasmuch as the text is brought up to date and the wartime demand for food and for food inspection has reached unprecedented heights.

In fact, for information on meat inspection and on its importance to the health of both

man and animals, one goes to Edelmann's. Contrary to what one might believe, it is American in style and in contents, including the number of animals slaughtered under veterinary inspection, the technique of the art, the government's regulations, and the approximate drain on national wealth by animal diseases. The background of this book is more than fifty years of experience in the ante- and postmortem inspection of animals running into unbelievable millions. [*Text Book of Meat Hygiene* by Richard Edelmann, Ph.D., revised by John R. Mohler, A.M., V.M.D., D.S., and Adolph Eichhorn, D.V.S. 468 pages. Cloth. Lea and Febiger, Philadelphia. 1943. Price \$5.50.]

### California Bulletin

The State of California, Department of Agriculture Bulletin, Volume 32, No. 1, for January, February, and March, 1943, contains three master essays, among other material intended to tell "what's doing" in that part of the Pacific region. The article entitled *The Veterinarian in Modern War* by Brig. Gen. Raymond A. Kelsner, reprinted from the *Army and Navy Journal* of Dec. 5, 1942, is one of those factual expositions of veterinary service widely circulated beyond the limited bourns of the veterinary field. It was not missed by the personnel of the Army, but was read by only a few veterinarians. It was thoughtful of Director William J. Cecil of the state department of agriculture and Administrator C. U. Duckworth of the division of animal industry to reprint this article for the edification of California stockmen. Veterinary journals have a small audience compared with the *Army and Navy Journal* and the *Bulletin*, above named.

The second article to command attention is titled *We Have Come a Long Way* by Duckworth, which follows through with a gripping account of American livestock history from the first importations of cattle by the early settlers to the tremendous industry of this moment. Dairying alone, which is but 25 per cent of the whole, is declared to be larger than the railroad or the automobile industry, and to clinch the argument, the author quotes Ripley's famous "Believe it or not," besides reminding the reader of the animal products contained in nearly every mouthful of food eaten. Even every loaf of bread has its milk, and is spread with butter besides, 181,000,000 pounds in California in 1941.

*Forty Years of Animal Disease Control* by Charles Keane, California's first state veterinarian, is basic American veterinary history told in fascinating language. The office was created in 1899. Cause: federal quarantine of 14 southern California counties on account of Texas (tick) fever. A magnanimous legislature

appropriated \$5,000 for salaries and traveling expenses for the first biennium (*sarcasm not ours*). The state veterinarian was given a corner of the state engineer's office as his post of command. A picture of this office is shown in the Bulletin. But, the office made good. Its annual reports testify to the progress made down to the founding of the first comprehensive state meat-inspection in the United States, which Arthur G. Boyd describes, with words and pictures, in another chapter. We advise veterinarians to write for this Bulletin and read it, and better still, tell the world what it contains. [*Bulletin, Vol. 32, No. 1, State of California, Department of Agriculture, Sacramento. 100 pages. Illustrated.*]

### Chemical Formulary

Those who follow the making of veterinary history need not be told that the no-books period which overtook the veterinary profession several decades ago has had a happy ending. The excellent reading and reference material brought to light in the *Book Notice* column of the JOURNAL is proof that the veterinarian's library need not remain impoverished. Veterinary science periodicals have perhaps neglected to focus sufficient attention on the books needed to round out graduate education, and to make private life and professional work easier. As a rule, only books with *veterinary* in the title received attention and these only in abridged columns. Publishers of "related books" were not invited to enhance the broad field of animal medicine, and thus step up the knowledge and advancement of those therein engaged. While *Chemical Formulary* is not intended to be educational in the fundamental sense, it does give a remarkable insight to the composition and preparation of hundreds of products in every day use from *fly paper* and *library paste* to *vanishing cream* and *boat plug compound*—in fact, everything useful containing drugs and chemicals, for home, farm, sports, and factory. As declared in the title: A collection of valuable, timely, practical formulas and recipes in many fields of industry. Nothing seems to have been omitted.

The material is arranged into 22 chapters (e.g. adhesives, beverages, cosmetics, food products, inks and marking materials, metals and alloys, paints and varnishes, photo materials, polishes, explosives, rubber, soaps and cleansers, textiles and fibers, etc.). In the miscellaneous chapter, one finds fireproofing, anti-leak, antifreeze, *et al.*; war gas protectants, water softener, water clarifier, fish baits, finger-print powder, and others too numerous to list here.

A revealing chapter of timely, wartime importance is titled *Substitutes*, to which 24 pages are devoted. This list of replacements, or

alternatives, is a strong lesson on the strain under which the veterinarian's supply house is laboring.

A board of 70 editors chosen from collegiate and industrial circles are responsible for the subject matter, all of which is presented in engaging fashion—not a drab group of formulas. [*Chemical Formulary. By H. Bennet and a Board of Editors. Cloth. 636 pages. Chemical Publishing Co., Inc., Brooklyn, 1943. Price, \$6.00*]

### Pharmaceutical Recipe Book III

The American Pharmaceutical Association has published the third edition of this recipe book, representing a complete revision of that useful formulary. It is evident that medical and pharmaceutical literature has been carefully gleaned to bring the edition abreast of the times. The sections on dentistry, cosmetics, chiropody, and veterinary medicine have been completely revised by capable authorities. Tables of Latin terms and equivalents, of vitamins, of coal-tar dyes, of percentage solutions, a glossary of synonyms, up-to-date toxicology, and a chapter on ophthalmic preparations, added to the 1,400 formulas contained, make up a reference book of extraordinary value in any branch of medicine. [*The Pharmaceutical Recipe Book, Third Edition, by authority of the American Pharmaceutical Association. Mack Printing Company, Easton, Pa. 551 pages. Cloth. 1943. Price, \$5.00.*]

### Home Grown Proteins

Farmers may find it difficult this fall to obtain all of the high protein feed they want. There is no assurance that the supply will be sufficient to fulfill the requirements for increased animal production mapped out by the Department of Agriculture. In view of the situation, farmers should plan to raise leguminous crops and economize on protein by feeding just enough to balance rations. A Jersey cow of 900 lb., for example, would require 0.63 lb. of protein daily, if she is expected to yield 30 lb. of milk which would contain 1.2 lb. of protein, meaning that the requirement of digestible protein would be 1.8 lb. Added to the 0.63 lb. for maintenance, she will need 2.3 lb. daily. If this cow is fed 12 lb. of concentrates containing 9.5 per cent of digestible protein, she would be receiving a liberal supply. A Holstein-Friesian giving 50 lb. of milk a day would need 16 lb. of leguminous hay and 16 lb. of concentrates. These calculations are based on the assumption that a cow will consume 1½ lb. per 100 lb. of body weight daily and the usual amount of other forage. [*T. E. Woodward, Bureau of Dairy Industry, USDA. Better Farms, May 22, 1943.*]



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# THE NEWS

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## AVMA Activities

### For the Good of the Nation

For the first time in its eighty years of service to the American people, the Association has mobilized its specialists in the various branches of veterinary medicine to distribute among farmers the scientific and practical facts about the handling of farm-animal diseases. The Association's releases are favorably received, universally appreciated, and widely published. The column "What the Papers Say," published in each issue of the JOURNAL is but a hint as to the magnitude of this service. The special reports of the committees on diseases of poultry, cattle, and swine and the excellent material contained in the section on nutrition are painting word pictures of what the veterinary profession stands for. This type of service to the people was too long withheld owing to lack of a plan while the profession was suffering from growing pains.

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### Can You Help Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice via postcard or letter will be greatly appreciated.

Adams, James L., Rt. 2 Box 160, Greeley, Colo.  
Bremer, Louis H., Wilmington, Ohio.

Brittin, Emmett E., 723 State Office Bldg., Lansing, Mich.

Canfield, Rolden F., Officers Pre Flight School, Santa Ana, Calif.

Chadwick, Chas. W., Mauer Neuer Corp., Arkansas City, Ark.

Cox, M. T., 60 Irapelo Rd., Waltham, Mass.

Crow, Louis C., c/o General Delivery, Ada, Okla.

Fitzgerald, T. C., Box 375, Auburn, Ala.

Fluharty, D. M., Co. B—30 M.T.B., 1st Platoon, Camp Grant, Ill.

Gay, Wm. J., Antioch, Ill.

Glucksman, Norman J., Spooner, Wis.

Hirleman, A. L., P. O. Box 1520, Columbus, O.

Holtzman, Jacob, Station Hosp., Army Air Base, Fort Douglas, Utah.

Hupp, Lynn D., 1339 E. Armour, Kansas City, Mo.

Ingram, H. E., c/o Swift & Co., 2300 S. Lamar, Dallas, Texas.

Irvin, Hugh, 430 W. Cambridge Ave., College Park, Ga.

Karber, Melvin W., Slater, Iowa.

Lingua, Peter F., 1 French St., Nashua, N. H.

McGill, Dana T., Mt. Sterling, Ill.

Mack, Ernest J., 6206 S. Troy St., Chicago, Ill.

Martin, Jerry T., Quitman, Texas.

Mathis, Rudy C., State Veterinarian, Atlanta, Ga.

Melles, Leonard H., Paullina, Iowa.

Melman, Harold, 4843 Reistertown Rd., Baltimore, Md.

Mirin, S. S., 236 Grand St., Brooklyn, N. Y.

Moon, E. E., Hqs. U. S. Army, Recruit Station, Ft. Crook, Neb.

Newhart, Charles C., Warren Hotel, Garden City, Kansas.

Orton, Clifford T., Campbellsport, Wis.

Patton, Clyde A., Rm. 11—YMCA Bldg., 2 W. Franklin St., Richmond, Va.

Petersen, Wm., General Delivery, Mt. Vernon, Wash.

Prater, A., c/o B. E. Maling, Inc., Hillsboro, Ore.  
Rivers, Ernest, c/o Mrs. J. K. Monroe, 58 Georgiana St., New London, Conn.

Roberts, Seymour R., General Delivery, Stockton, Calif.

Robertson, D. S., Fort Sam Houston, Texas.

Scheffler, Harold Geo., 136-21 Hillside Ave., Jamaica, L. I., N. Y.

Siver, Dougal, 429 Wrightwood Ave., Apt. 1-N, Chicago, Ill.

Smith, Chas. L., Rt. No. 1, Harveyville, Kansas.  
Trundy, Edward L., Bangor, Maine.

Vogel, W. M., 457 Sandhurst Dr., Dayton, Ohio.

White, Howard S., Randolph Hall Annex B—Rm. 48, Ft. Monroe, Va.

Woodruff, Raymond, 61 Pleasant St., Norwich, N. Y.

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"I am right and you are wrong" is the title of the dirge sung at the funeral of truth. It is common sense not to die of that disease; few are ever entirely right or entirely wrong. The Germans and the farm bureau for example.



## APPLICATIONS

### ALEXANDER, S. A.

320 E. Windsor St., Monroe, N. Car.  
D.V.M., Ohio State University, 1916.  
Vouchers: J. H. Brown and B. H. Staton.

### BECKOM, EDWIN A. JR.

Jacksonville, Texas.  
D.V.M., Texas A. & M. College, 1938.  
Vouchers: W. H. Wiswell and H. V. Cardona.

### BISHOP, ROBERT S.

Rt. 1—Box 279, Fresno, Calif.  
D.V.M., Kansas State College, 1928.  
Vouchers: H. E. Shepherd and A. G. Boyd.

### BROWN, SCOTT B.

1300 Owyhee St., Boise, Idaho.  
D.V.M., State College of Washington, 1916.  
Vouchers: P. H. Graves and W. E. Stahl.

### GRUEBLER K., R.

Liberstad 50, Santiago, Chile, S. A.  
D.V.M., Universidad de Chile, 1942.  
Vouchers: E. A. Benbrook and M. Cornejo.

### HALL, H. W.

552 Forest Drive, S.E., Cedar Rapids, Iowa.  
D.V.M., Iowa State College, 1913.  
Vouchers: E. M. Berroth and A. R. Menary.

### HOTTELLER, ROY I.

560 Siskiyon Blvd., Ashland, Ore.  
D.V.M., State College of Washington, 1939.  
Vouchers: R. O. Anslow and E. W. Morehouse.

### MILLS, HAROLD B.

Station Hospital, Camp Wolters, Texas.  
D.V.M., Texas A. & M. College, 1939.  
Vouchers: M. B. Starnes and J. E. Greene.

### PEGG, CHARLES ELMER II.

Station Hosp., Tuskegee Army Air Field,  
Tuskegee, Ala.  
D.V.M., Colorado State College, 1940.  
Vouchers: J. C. McIntyre and J. K. Marriott.

### SOURS, MUNRO

712 So. Main St., Pleasantville, N. J.  
D.V.M., Michigan State College, 1925.  
Vouchers: R. L. Ticehurst and J. G. Hardenbergh.

### THOMPSON, JOHN THOMAS

Burns & Co., Regina, Sask., Can.  
V.S., Ontario Veterinary College, 1908.  
B.V.Sc., Ontario Veterinary College, 1913.  
Vouchers: J. E. Horsland and E. A. Willick.

### Second Listing

Bean, Robert L., 220 N. Morgan, Portland, Ore.  
Gama B., Felipe, Egipto No. 163 "A" Col. Claveria, Atzacotzalco, D. F., Mexico City.  
Kloker, Paul, Arenzville, Ill.  
Larson, N. H., Ossian, Iowa.  
McDonough, J. F., N.E. Cor. 59th & Elmwood Ave., Philadelphia, Pa.  
McIntosh, George E., Box 268, Arlington, Texas.  
Miller, C. E., 1953 Grande Ave., S.E., Cedar Rapids, Iowa.

Nordland, O. S., 4731 Decarie Blvd., Montreal, Que., Can.

Perdue, H. S., 2117 Greenwood Dr., S.E., Cedar Rapids, Iowa.

Ravitch, Martin H., 515 N. Second St., Harrisburg, Pa.

Robb, Jas. F., 1011 Lansing, Jackson, Mich.

Ruggles, Alfred C., 339 N. Wycoff St., Bremerton, Wash.

Vorthman, Oscar M., 1906 Park Ave., S.E., Cedar Rapids, Iowa.

## 1943 Graduate Applicants

### First Listing

The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the administrative by-laws to members in good standing of junior chapters. Applications from this year's classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

### Kansas State College\*

All of the following applicants, with the exception of those otherwise noted, were vouched for by Dean R. R. Dykstra and Dr. E. J. Frick.

ANDERSON, EUGENE E., D.V.M.

Greenleaf, Kansas.

ATKINS, ROBERT C., D.V.M.

2815 Washington, Parsons, Kansas.

BERG, LEO G., D.V.M.

Harper, Kansas.

BOWERS, DON R., D.V.M.

Downs, Kansas.

BRECHEISEN, ADEL W., D.V.M.

Welda, Kansas.

BROWN, FRANCIS H., D.V.M.

420 Humboldt St., Manhattan, Kansas.

BUCHLI, RICHARD, D.V.M.

4404 Wornall Rd., Kansas City, Mo.

BURNS, JOHN R., D.V.M.

220 S. 8th St., Manhattan, Kansas.

CARAWAY, HUGH L., D.V.M.

2629 Claiborne, Shreveport, La.

COFFMAN, ROGER G., D.V.M.

Rt. No. 1, Overbrook, Kansas.

COOK, RAYMOND H., D.V.M.

Courtland, Kansas.

DONAHUE, DENNIS R., D.V.M.

229 N. Clark St., Bonner Springs, Kansas.

FOELSCHOW, LESLIE O., D.V.M.

4046 Hamilton St., San Diego, Calif.

GATZOULIS, PAUL, D.V.M.

618 St. Paul St., Kansas City, Kansas.

GUIFOIL, JOSEPH, D.V.M.

221 N. 17th, Kansas City, Kansas.

HARRIS, WARREN G., D.V.M.

1220 Vattier, Manhattan, Kansas.

HENRIKSON, KEITH D., D.V.M.  
R.R. No. 2, Concordia, Kansas.

HINEMAN, KALO A., D.V.M.  
Dighton, Kansas.

HINEMAN, RICHARD E., D.V.M.  
Dighton, Kansas.

HOINS, JOHN III, D.V.M.  
621 Pawnee, Leavenworth, Kansas.

HOLLER, ORVIN H., D.V.M.  
Conway, Kansas.

ISAACSON, LLOYD L., D.V.M.  
Stonefield, Minn.

JACKSON, S. LESTER, D.V.M.  
Parker, Kansas.

LAMONT, JACK D., D.V.M.  
1219 Pierre St., Manhattan, Kansas.

LUMB, W. V., D.V.M.  
1814 Fairchild, Manhattan, Kansas.

McCLURKIN, ARLAN, D.V.M.  
R.R. No. 2, Clay Center, Kansas.

McMAHAN, WILLARD L., D.V.M.  
Rossville, Kansas.

MEREDITH, W. HUGH, D.V.M.  
Lincoln, Kansas.

MIESSE, W. B., D.V.M.  
R.R. No. 1, Marion, Kansas.

MINNIS, RUSSELL G., D.V.M.  
802 Leavenworth St., Manhattan, Kansas.  
Vouchers: W. W. Thompson and E. J. Frick.

MITCHELL, KENNETH, D.V.M.  
Axtell, Kansas.  
Vouchers: W. W. Thompson and E. J. Frick.

MOHENY, LEONARD W., D.V.M.  
Sawyer, Kansas.

MOODY, ROBERT, D.V.M.  
Greeley, Kansas.

NEWMAN, JOHN P., D.V.M.  
914 Leavenworth St., Manhattan, Kansas.

OBERST, FAYNE H., D.V.M.  
305 N. Olivette, McPherson, Kansas.

OGLIVIG, FRED B., D.V.M.  
Lake of Forest Club, Edwardsville, Kansas.

OLNEY, RICHARD, D.V.M.  
Cassville, Mo.

PENTICUFF, CLARENCE, JR., D.V.M.  
1009 Armstrong, Kansas City, Kansas.

POPPENHOUSE, ROBERT L., D.V.M.  
1119 Houston, Manhattan, Kansas.

PORTER, DEAN, D.V.M.  
Mt. Hope, Kansas.

PORTER, JOHN J., D.V.M.  
Selma, Kansas.

PYLES, ROBERT L., D.V.M.  
1601 Walker Ave., Kansas City, Kansas.

REEVE, MARSHALL P., D.V.M.  
Stone Apts., Stevens Ave., Garden City, Kansas.

ROCKHOLD, MERRILL, D.V.M.  
Herington, Kansas.

SHANE, C. K., D.V.M.  
531 N. Manhattan Ave., Manhattan, Kansas.

SPLITTER, EARL J., D.V.M.  
Frederick, Kansas.

THIES, WILLIAM M., D.V.M.  
Hillsboro, Kansas.

VACURA, GORDON, D.V.M.  
Jackson, Minn.

WEBER, HOWARD O., D.V.M.  
2930 N. 37th St., Kansas City, Kansas.

WHITE, WILBUR W., D.V.M.  
Delphos, Kansas.

WILSON, AMOS P., D.V.M.  
Rt. No. 3, Manhattan, Kansas.

ZIMMERMAN, KENNETH C., JR., D.V.M.  
703 W. Ninth St., Coffeyville, Kansas.

### Michigan State College

GREEN, MERLIN JAMES, D.V.M.  
435 M.A.C. Ave., East Lansing, Mich.  
Vouchers: H. H. Ruhland and B. J. Killham.

### Ohio State University

DAHMEN, JOHN R., D.V.M.  
Cortland, Ohio.  
Vouchers: T. W. Craver and N. S. Craver.

WEIL, FREDERICK, D.V.M.  
A.A.B., Mt. Home, Idaho.  
Vouchers: W. F. Guard and W. R. Krill.

### Ontario Veterinary College

LAWRENCE, RONALD E., B.V.Sc.  
12 Russell St., W., Lindsay, Ont., Can.  
Vouchers: F. W. Schofield and C. D. McGilvray.

TALBOT, G. P., B.V.Sc.  
Hub 4, O.T.C., Brockville, Ont., Can.  
Vouchers: F. W. Schofield and R. A. McIntosh.

TAYLOR, IAN W., B.V.Sc.  
206 Balmoral Ave. S., Hamilton, Ont., Can.  
Vouchers: R. A. McIntosh and C. D. McGilvray.

### Washington State College

CROWL, WALTER B., D.V.M.  
945 N. Fairfax Ave., Los Angeles, Calif.  
Vouchers: E. E. Wegner and P. C. Lockhart.

DAVIS, SANFORD E., D.V.M.  
829 Orchard Ave., Grants Pass, Ore.  
Vouchers: E. E. Wegner and E. W. Cantrall.

DUBY, GEORGE D., D.V.M.  
316 W. 76 St., Seattle, Wash.  
Vouchers: E. E. Wegner and R. S. Adams.

JENNEY, EDWIN W., D.V.M.  
S. 519 Division St., Spokane, Wash.  
Vouchers: E. E. Wegner and J. A. Thompson.

MACKINTOSH, RODERICK G., D.V.M.  
112 Park Ave., Yakima, Wash.  
Vouchers: P. G. Mack and H. A. Trippeer.

PETERSON, IVAN A., D.V.M.  
945 N. Fairfax Ave., Hollywood, Calif.  
Vouchers: E. E. Wegner and P. C. Lockhart.

**Second Listing****Alabama Polytechnic Institute**

Croft, Deward Briggs, D.V.M., Crossville, Ala.  
 Gafford, Robert B., D.V.M., 522 S. Lawrence St.,  
 Montgomery, Ala.  
 Pittman, Clifford W., D.V.M., Uvalda, Ga.

**Colorado State College**

Kuenster, Julius L., D.V.M., Livingston, Wis.  
 Smith, Jess W., D.V.M., Brunswick, Mo.  
 Westcott, W. J., D.V.M., 14535 St. Marys, De-  
 troit, Mich.  
 Williams, Robert R., D.V.M., 1000 N. Kimball,  
 Caldwell, Idaho.

**Ontario Veterinary College**

Earl, Edward R. C., B.V.Sc., Hamilton, Ber-  
 muda.  
 McCormick, Gerald E., B.V.Sc., Athelstan,  
 Quebec, Can.  
 Nundal, D. L., B.V.Sc., Langley Prairie, B. C.,  
 Can.  
 Steeves, D. M., B.V.Sc., 174 Victoria St., Mon-  
 cton, N. B., Can.

**State College of Washington**

Francis, John L., D.V.M., Box 93, Palmer, Wash.  
 Harris, William F., D.V.M., Pasco, Wash.  
 Hinz, Earl F., D.V.M., Route 6, Yakima, Wash.  
 Hoop, Jay D., D.V.M., 1212 Belmont Ave.,  
 Fresno, Calif.  
 Jones, Marlowe H., D.V.M., 112 S. Second, Day-  
 ton, Wash.  
 Sheehan, John, D.V.M., R.F.D. No. 1, Box 377,  
 Renton, Wash.  
 Webb, Gene C., D.V.M., Clatskanie, Ore.

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**U. S. GOVERNMENT**


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**Pet Animal Industry Advisory Committee  
Appointed**

The following memorandum was sent on June 19, 1943, by David Meeker, acting chief of the Farm Machinery and Supplies Division, Office of Materials and Facilities, to J. B. Hutson, associate administrator, War Food Administration, and contains information bearing on the pet feeding situation.

On Friday, June 11, 1943, a permanent Pet Animal Industry Advisory Committee was appointed to assist in working out problems incident to Food Production Order No. 7, which controls protein content of pet foods and limits the quantity of such foods that can be manufactured.

Several members of this industry were consulted when the order was originally issued, early in 1943. Because of the many problems involved, it was deemed advisable to appoint a permanent advisory committee because of the

need for working out educational problems, not only deriving from the order itself, but regarding ways and means of informing pet owners how to feed animals under wartime restrictions consistent with the over-all food supply situation.

The functions of the Committee will be to work out ways of meeting feeding requirements of the animals concerned, including the quality and quantity of foods permitted under FPO No. 7, to carry out educational efforts to inform pet owners how best to use available pet foods, and to work out problems incident to a sane breeding control program during the war.

The first official meeting of the Committee was held in Washington, June 15, 1943, when it was formally organized, and discussed the various problems, including nutrition, breeding control, and educational efforts, and sub-committees were appointed to work on these problems. Members of the Committee include:

Representatives of pet food manufacturers—E. D. Griffin, Allied Mills, Chicago, Ill.; C. M. Olsen, Swift and Company, Chicago; W. E. Armstrong, Gaines Food Company, Sherburne, N. Y.; Troy V. Cox, Albers Milling Company, Seattle; Walter Mowll, Old Trusty Dog Food Co., Needham Heights, Mass.; Cyrus Gambrell, Dietrich and Gambrell, Frederick, Md.; John O'Neal, Security Mills, Knoxville, Tenn.; O. E. M. Keller, Kasco Mills, Toledo; Harry Lustine, Washington, D. C.

Representatives of affiliated interests—Henry D. Bixby, executive vice-president, American Kennel Club, New York City; Sydney H. Coleman, American Humane Association, New York City; Jack Baird, president, Dog Writers' Association, Wappinger Falls, N. Y.; Mrs. R. R. Taynton, Dog Writers' Association, Falls Church, Va.; Harry I. Caesar, president, Dogs for Defense, New York City; Dr. J. G. Hardenbergh, American Veterinary Medical Association, Chicago; Dr. M. L. Morris, American Animal Hospital Association, New Brunswick, N. J.; Elliot Balestier, Jr., president, American Dog Feed Institute, New York City; Dr. H. E. Robinson, Swift and Company, Chicago; Dr. Leonard Goss, Zoological Gardens, New York City; Dr. J. B. Engle, American Veterinary Medical Association, Summit, N. J.

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**Censorship Discontinued.**—Censorship of technical, professional, and scientific material for export was discontinued July 1, 1943, by direction of Byron Price, director of censorship. Under the new directive, exported publications containing nothing violating the voluntary Code of Wartime Practices may be sent abroad without examination by the Board of Economic Warfare before mailing. "No good purpose can be served in restricting the export of American publications," the Director announced.

**Penicillin Placed Under Allocation.**—Because the defense needs for penicillin have created a shortage of this germ-killing derivative of *Penicillium notatum*, the War Production Board on July 9, 1943, placed the product under allocation (Order M-338). The order restricts the delivery and use of penicillin, on and after July 16, 1943, to those persons and purposes specifically authorized in writing by WPB. The Board also reserves the right to issue special directions, at its discretion, with respect to the use, delivery and production of penicillin by any person.

Suppliers of the product are required to file applications and obtain approval of same before using or delivering penicillin in any form.

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**Pet Food Limitations Renewed.**—To divert as much animal and vegetable protein as possible into production of vitally needed livestock and poultry feeds, the War Food Administration on July 1, 1943, renewed its limitations on pet food manufacture. The limitations are designed to provide a minimum maintenance diet for household animals, and continue restrictions on the use of protein in pet foods.

Controls over pet food content and production were contained originally in Food Production Order 7 which expired June 30. Its provisions are continued in Food Distribution Order 58, effective July 1, 1943, with only minor changes:

1) Manufacturers' production quotas will be determined on a yearly basis under the new order, instead of on a six-months basis. Specifically, manufacturers are required to limit their output of pet foods to the quantity, by dry weight, which they manufactured in 1941, or to four times the quantity prepared during the last three months of 1942, whichever is greater. The provision will make it possible for manufacturers who have not produced up to their quotas for the first six months of 1943 to complete them during the last half of the year.

2) The definition of pet foods is altered to specifically include "processed meat products" intended for animal pet consumption.

Requirements that the animal protein content of pet foods be limited to 8 per cent by dry weight, and total protein contents to 24 per cent by dry weight are continued under FDO 58. Pet foods supplied to the armed forces remain exempt from the formula restrictions.

Although the protein reduction in pet foods is considerable—normally these products contain from 32 to 36 per cent total protein, of which from 25 to 28 per cent is animal protein—WFA officials said that the protein content permitted under the order is adequate for minimum nutrition of pets.

## Turkey Production

The turkey crop of the United States for 1942 was 32,691,000 head. Texas led with 3,625,000, Minnesota was second with 3,187,000 and California third with 3,113,000. The price averaged 27.4 cents a pound higher than 1929, the last year of post-World War inflation when the price reached 25.7 cents a pound. The cash income from turkeys for the year was \$114,944,000 which is an all-time record for that fowl.—*From the Bureau of Home Economics, USDA.*

## AMONG THE STATES

### California

**State Association.**—The state association held its fifty-sixth annual meeting in Los Angeles, June 23, 1943. The theme of the meeting was animal nutrition and was ably carried out as shown by the program which follows:

**George H. Hart, D.V.M., M.D.:** "Animal Nutrition and Health."

**Francis M. Pottenger, Jr., M. D.:** "Heat Treatment of Food and Its Effect on Animal Nutrition."

**C. W. Gilfillan, M. D.:** "Recent Advances in Open Reductions and Healing of Fractures."

Although the advisability of holding meetings in wartime is always a matter of discussion, the members are more than ever convinced, after this meeting, that it was a wise thing to do. The officers elected for the new year are:

John M. King, *president*, San Jose; E. C. Baxter, Los Angeles, *first vice-president*; E. C. Le Donne, Oakland, *second vice-president*; Chas. H. Reid, *third vice-president*, Hollywood; S. T. Michael, San Francisco, *secretary*; and O. A. Longley, San Francisco, *treasurer*.

S/JOHN L. TYLER, *Secretary*

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**The Central California Veterinary Medical Association** elected the following officers at their business meeting May 25, 1943:

John D. Paxton, Fresno, *president*; R. S. Rey, Visalia, *vice-president*; and L. D. Leonard, Fresno, *secretary-treasurer*.

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### Canada

Writes Lieut. L. Zlotnick (Ont. '43): "You know there is no professional employment for veterinarians in the Canadian Army. So, G. P. Talbot (Ont. '43) and myself are in the artillery and a good many other veterinarians are in infantry, artillery, and tank corps units. The



veterinary journals are our only means of keeping in touch with the profession. I am always glad to see the JAVMA appear."

• • •

**Provincial Veterinary Conference.**—The conference held at the Ontario Veterinary College at Guelph, July 6-8, 1943, in collaboration with the provincial veterinary association, was convened to aid in supplying the increased demand (quoting) "for eggs, bacon and milk products for oversea shipment to Great Britain." The subjects discussed were shaped to that end, as the following program indicates:

**V. R. Brown:** "The Structure of the Cow's Udder."

**H. T. Batt:** "The Physiology of Milk Secretion."

**R. A. McIntosh:** "Prevention and Treatment of Mastitis," and the "Prevention, Treatment and Control of Calf Scours."

**L. Stevenson:** "Food Toxemia."

**A. H. Kennedy:** "The Uses and Application of Anthelmintics."

**J. S. Glover:** "The Diagnosis, Prevention and Control of Poultry Diseases," and "Prevention and Treatment of Parasitic Diseases of Sheep."

**C. E. Phillips:** "Pulmonary Diseases of Swine."

**F. W. Schofield:** "Gastrointestinal Diseases of Swine."

In lieu of the usual horse and cattle clinic, diagnostic and clinical work on sheep, swine, dogs, and poultry was substituted.

## Hawaii

Owing to interrupted importations of citrus fruit from the mainland, the population is experiencing trouble in providing itself with adequate quantities of vitamin C, a deficiency that is more or less serious in Britain and Continental Europe. The University of Hawaii, in studying sources of vitamin C other than orange juice, found that guava (*Psidium guajava*) and solo papayas (*Carica papaya*) contain about 80 mg. of ascorbic acid per 100 Gm., or approximately the equal of oranges.

## Illinois

**Northern Illinois Association.**—The quarterly meeting of the Northern Illinois Veterinary Medical Association was held June 30, 1943, at the Hotel Nelson, Rockford. The following program was presented:

**H. R. Hornbaker, Galesburg:** "Swine Diseases with Special Reference to Differential Diagnosis of Swine Erysipelas."

**A. A. Legner, Sandwich:** "Some Phases of Swine Disease Control."

**Glen D. Grogan, Aurora:** "Nutritional Factors in Controlling Swine Diseases."

**Brig. General John M. Willis**, commanding officer of Camp Grant, gave the address of the evening.

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**Know Your University** is the title of an illustrated 14-page bulletin issued by the state university, to explain what the university does, where it is located, what's its size, its growth



The west wing of the buildings housing the Department of Animal Pathology and Hygiene, University of Illinois.

and sources of support, its operating costs, and its needs. Among "new programs" are a nursery school, a university press, a cancer unit and a new department of animal pathology and hygiene (quoting) "demanded by the owners of livestock who must depend upon it not only for the health among livestock but for human health." This department will be housed in the new building requested to replace the present barn.

• • •

The bill before the General Assembly providing for the compulsory vaccination of dogs against rabies was defeated by the Senate after having been passed by the House. Dogdom is rejoicing. According to *Dog World*, which mobilized a strong campaign against the measure, the bill was sponsored by the departments of health and agriculture, obviously unwarned of the barrage of protests such legislation always arouses. The state association, with its faultless 60-year record of fair play and sound advice, was not consulted.

The defeat is a lesson on *modus operandi*. Regulatory laws on animal-disease control, not preceded by educational programs, are unpopular and if "slipped over" they are not enforceable. The owners of animals have to be convinced that such laws are a public necessity before protests against their passage and subsequent enforcement can be broken down.

## Indiana

F. C. Tucker of Claypool, prominent in poultry-practice circles, spoke on the handling of poultry flocks in a broadcast June 10, during "Everybody's Farm Hour" of WIW. Dr. Tucker, who is credited with having one of the largest poultry practices in the country, is well known to veterinary audiences of the Middlewest.

On July 31, the Hon. George W. Gillie, Fort Wayne veterinarian and congressman for the fourth district, spoke over the same station on "Keep 'em Healthy." Says the announcement in part: "Dr. Gillie completed a course in dairy science at Purdue and received his D.V.M. at Ohio State University. He was in charge of meat and dairy inspection and served several terms as sheriff of Allen county before his first election to Congress. His experience qualifies him to bring listeners much pertinent information on livestock health."

## Kansas

Kansas State College Junior Chapter of the AVMA donated \$400.00 in war bonds to the veterinary reading room of the college. The funds thus invested and donated were saved by the chapter foregoing its annual dinner-dance.

## Louisiana

P. J. Ewald (Texas A & M '43) has located in Natchitoches to practice veterinary medicine.

## Michigan

**Weekly Radio Programs on Animal Diseases Conducted by Michigan State College.**—Station WKAR, the broadcasting service of Michigan State College, started about two months ago a program to assist in achieving food production goals by reducing losses in farm animals and poultry. The programs are arranged by Dr. B. J. Killham, extension specialist in animal pathology, and are broadcast each Tuesday at 1:30 p.m., wartime, which is practically noon "sun time" for Michigan farmers.

The discussions on animal and poultry disease control are held in an informal manner and the value of veterinary services to effective control measures are emphasized. The program was initiated by the college authorities at the suggestion of the Committee on Public Relations of the Michigan State Veterinary Medical Association.

Michigan veterinarians especially are urged to listen to the programs and to learn how they are being received by Michigan farmers. Dr. Killham will appreciate hearing the reactions of veterinarians to the discussions that are broadcast.

Chas. Haasjes, Shelby veterinarian and chairman of the War Meat Committee of Oceana county, writes that the meat situation there is critical, and that an office and office help have been provided to prevent "gluttony and black markets." Reports on food and the care of farm animals published by the AVMA committees, and USDA releases are used to edify the public on the motives of the War Meat Committee.

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H. S. Atkins, formerly with the Detroit Board of Health, is now engaged in large and small animal practice at 918 Lapeer St., Flint. Dr. Atkins is operating the small animal hospital formerly owned by Dr. C. C. Schaefer at this address.

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**Notes of the State Association Meeting in June.**—Eighty-two new members were added to the roll, an increase of 37 per cent.

An amendment to the by-laws was adopted which provides that junior AVMA members, upon graduation, and AVMA members who move to Michigan from other states, may become members of the state association by paying only the dues for the remainder of the calendar year; the membership fee in such cases is not required.

Another amendment was presented for action next year which would permit the acceptance of applicants thirty days after their names and addresses have been published in the association's official publication, *The M.S.C. Student*, provided no objections in writing are presented by association members in that time.

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I see by the papers, as Bill Rogers used to say, that while Governor Kelly was orating on state rights and decentralization he had to pause long enough to call upon the "centralizers" for troops to quell a brawl. As soon as the states remove their quota of bad faith and become dutiful nieces, Uncle Sam can roll down his sleeves and sit at his fireside in serene contentment. 'Til then, he has to fight around to keep his family affairs in order. No one is more qualified to speak on the subject than the veterinarian engaged in livestock sanitary work which, though nothing less than fighting for national existence, always found state rights to be its principal hindrance.—Anon.

## Mississippi

**Violator of Slaughter Permit Order Fined.**—A Mississippi farmer and restaurant operator of Jackson, Miss., pleaded guilty July 1, 1943, in

U. S. District Court, southern district of Mississippi, to a charge of killing livestock without a permit, as required by Food Distribution Order 27, and was fined \$5,000. In addition, he was given a six-month jail sentence, which was suspended on condition he pay the fine. In this connection, he was placed on probation for six months.

On June 11, the defendant also pleaded guilty in the circuit court of Hinds county, Mississippi, to a charge of offering for sale as human food meat which was unclean and unfit for human consumption and was sentenced to two years in the state penitentiary. Evidence disclosed that the defendant, who had no permit to slaughter, on April 8, 1943, killed a diseased hog at his farm and had it delivered to the Grillis grill which he operated in Jackson. The meat on the following day was condemned by local authorities and was destroyed.

Evidence also revealed that the defendant maintained no records of livestock sales, another violation of the permit order, and that he entered into an agreement on April 6 for the sale of a cow and a calf to a purchaser who accepted delivery the next day. Four persons in sworn statements admitted that the defendant had offered them inducements to give false information about the diseased hog. A signed statement was received from him in which he admitted prior knowledge of the provisions of the slaughter permit order, denied previous knowledge or consent to the slaughter of the diseased hog, and denied that he had offered inducements to any persons to give false information concerning his activities.

Credit for uncovering the violations is given to the sanitary inspector for Hinds county, Mississippi. For several months past he had the defendant under surveillance because of previous actual and suspected infractions of local sanitation regulations. In this instance, his suspicions were aroused when he was told by the local veterinarian that the farmer had a diseased hog shot and apparently planned to slaughter it and offer it for sale at his restaurant. The health official ordered an investigation in which the hog carcass was found in a refrigerator in the restaurant. The carcass of the slaughtered hog was identified by the veterinarian as that of a sick hog he previously treated on the defendant's farm. The carcass bore no permit stamp as required by law. The hog had a combination of peritonitis and swine plague.

#### Missouri

**St. Louis Association.**—The St. Louis Veterinary Medical Association held its regular meeting July 9, 1943 at the Hotel Roosevelt. The date was selected to enable Dr. W. W. Dimock, president of the AVMA, to get trans-

portation from Lexington, Ky. Dr. Dimock discussed "Nutrition of Farm Animals."

Mrs. A. E. Bott and her committee of the Women's Auxiliary made final plans for their activities during the war conference of the AVMA to be held in St. Louis Aug. 25-26, 1943.

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**Southwest Veterinary Medical Association.**—The annual meeting of the Southwest Association was held May 20, 1943, at the Drake Hotel in Carthage. The guest speakers were E. L. Dicke, Louisberg, Kans.; C. D. Folse of the Curts-Folse Laboratories, Kansas City, Kans.; and Thomas Crispell of Parsons, Kans.

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**No Veterinarian in County; Druggist Takes His Place.**—"Potosi, Mo.—Without a single veterinarian in a stock raising county, G. F. H. Coy, owner of the Coy Drug Co., here, finds it his duty, as well as to his advantage to keep well informed on farm animal care. By constant study, and by attending special veterinary classes, Mr. Coy has been able to keep up-to-date on stock and poultry remedies and to gain the growing confidence of the farmers in his community.

"Even if he were not called upon to partially replace the services of a veterinarian, he would still continue his studies on animal health, Mr. Coy insists, and he urges other druggists to do the same on the ground it will give them countless loyal customers.

"Because he visits farmers of his county regularly to discuss stock problems, and because he maintains an active direct mailing service of manufacturers' literature, Mr. Coy reports animal health merchandising in his store has gone up 300 per cent. As a direct result of this increase, overall store sales have shown a 40 per cent rise. 'This is easily understood,' druggist Coy explained, 'since 300 of the 500 people who walk into my store each day are farmers. These farmers are all animal-health products customers and potential buyers of many other commodities.'"—From *Drug Topics*, May 31, 1943.

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#### New Jersey

**State Association.**—Seventy-five veterinarians from this and adjoining states attended the fifty-ninth semiannual meeting of the Veterinary Medical Association of New Jersey held at Asbury Park on July 8, 1943. The program was devoted to matters of particular economic significance at this time and included the following:

H. W. Jakeman, Boston, Mass.: "Conservation of Pork by Reduction of Swine Losses."

E. R. Cushing, Plainfield: "Veterinary Herd Problems."

J. B. Engle, W. R. Ecker and F. H. Owens

participated in a panel discussion on the subject, "Feeding Dogs in Wartime."

s/ J. R. PORTEUS, *Secretary*

### North Carolina

**State Association.**—The forty-second annual meeting of the North Carolina Veterinary Medical Association was held June 23-24, 1943, at the North Carolina Hotel, Raleigh. The following program was presented:

**A. O. Shaw**, State College, Raleigh: "The Use of a Mixture of Salt and Phenothiazine in the Treatment of Parasites."

**J. V. Lacroix**, editor, North American Veterinarian, Evanston, Ill.: "Modern Surgical Technics," and "Preoperative and Postoperative Care of the Patient."

**A. C. Merrick**, Brookfield, Ill.: "Non-Parasitic Skin Diseases."

**A. H. Craige, Jr.**, Indianapolis, Ind.: "The Role of Chemotherapy in Problems Related to Reproduction."

**Wm. Moore**, state veterinarian, Raleigh: "Animal Quarantine Laws of North Carolina."

**J. I. Neal**, Southern Pines: "My Work on Mastitis."

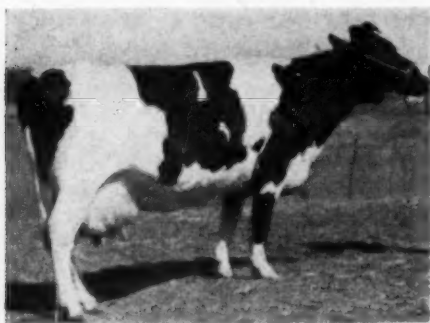
**Dr. Lacroix** conducted a clinic on State College campus, assisted by **Drs. Wm. Moore** and **E. F. Boyette**.

The officers elected for the new year are: **C. D. Grinnells**, Raleigh, *president*; **W. L. Stallings**, Forest City, *first vice-president*; **Lt. C. J. Lange**, Greensboro, *second vice-president*; **J. H. Brown**, Tarboro, *secretary-treasurer*; and **E. G. Boyette**, Smithfield, and **B. H. Staton**, Rocky Mount, *directors*.

s/J. H. BROWN, *Secretary-Treasurer*

### Pennsylvania

**Lewis A. Zimmerman**, of Leighton, with his herd of 16 registered Holstein-Friesians, made



*From Hoard's Dairyman*

**Pansy Ormsby Boast**, champion of the Zimmerman herd, produced 1,106.1 lb. of butterfat in a herd of 16 averaging 731.9 lb. for the year.

the highest score for all breeds ever written into the records of herd production and was awarded the Herd Improvement Test Certificate for the year. The average for the 16 cows was 19,983 lb. of milk containing 731.9 lb. of butterfat. The butterfat figure exceeds the former high mark by 21.7 lb., which was made by a registered herd in Oregon last year.

The Zimmerman cows were machine-milked three times a day during the 365 days preceding Feb. 28, 1943.

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**W. B. Rawlings** resigned as assistant director of the Pitman-Moore Biological Laboratories, Zionsville, Ind., to accept the position as production director of the Reichel Laboratories at Kimberton. Dr. Rawlings began his new duties June 1, 1943.

### South Carolina

**Oleomargarine.**—Congressman Fuller of this state has introduced a bill in the House of Representatives (H. R. 2,400) designed to eliminate the provision of the internal revenue code providing for a tax on colored oleomargarine and doing away with the licensing of manufacturers and dealers of that ersatz. The bill, if passed, would take the country back to the days when there was no compunction about marching oleo to the table in the guise of butter. The tax on white oleo is but ¼ of a cent per pound. If colored to imitate the shade of butter, the tax is 10 cents a pound. Again, dairy associations are being urged to protest against the passage of the bill.

### Texas

**Waco and McLennan** counties are served now by one more veterinarian, Dr. Harry H. Pelot, a graduate of the Texas A & M College. Dr. Pelot purchased the hospital formerly known as the Waco Veterinary Clinic, and is operating it under the name of Blue Cross Veterinary Hospital, where there are facilities for the care and treatment of both large and small animals.

### Wisconsin

In a recent check made on machine farming by F. B. Hadley, longtime head of veterinary science, College of Agriculture, it was found that 70 per cent of the farm machines operated on farms skirting an arterial highway in the central part of the state were horse drawn.



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## COMING MEETINGS

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American Veterinary Medical Association. Hotel Jefferson, St. Louis, Mo., Aug. 25-26, 1943. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago, Ill., executive secretary.

American Animal Hospital Association. Annual meeting. Hotel Jefferson, St. Louis, Mo., Aug. 26-27, 1943. R. E. Ruggles, 901 19th St., Moline, Ill., secretary.

Missouri Veterinary Medical Association Business meeting only, New Hotel Jefferson, St. Louis, Mo., 8 p. m., Aug. 24, 1943. J. L. Wells, 1817 Holmes St., Kansas City, Mo., secretary-treasurer.

University of Illinois Veterinary Conference. University of Illinois, Urbana. Oct. 6, 1943. Robert Graham, head, Dept. of Animal Pathology and Hygiene.

Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 7-8, 1943. C. R. Donham, head, Dept. of Veterinary Science, Purdue University.

Eastern Iowa Veterinary Medical Association. Hotel Montrose, Cedar Rapids. Oct. 12-13, 1943. R. E. Elson, Vinton, Iowa, secretary.

American Public Health Association (1790 Broadway, New York City). Wartime Public Health Conference, New York City, Oct. 12-14, 1943. Seventy-second annual business meeting of the Association will be held in connection.

Pennsylvania State Veterinary Medical Association. Penn Harris Hotel, Harrisburg, Pa., Oct. 21-22, 1943. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia, Pa., secretary.

Mississippi Valley Veterinary Medical Association. Fall meeting, Custer Hotel, Galesburg, Ill., Nov. 17-18, 1943. L. A. Gray, Bushnell, Ill., secretary.

### Meetings Postponed or Cancelled

National Veterinary Practitioners Association. Annual meeting, Jefferson Hotel, St. Louis, Mo. Evening meeting Aug. 26; day meeting, Aug. 27, 1943. J. C. Flynn, 3026 Main St., Kansas City, Mo., secretary. Meeting cancelled.

Montana Veterinary Medical Association. Hadleigh Marsh, Agricultural Experiment Station, Bozeman, Mont., acting secretary. The Association will not hold a meeting in 1943.

Houston Veterinary Medical Association. Meetings postponed for the duration.

Mississippi Veterinary Medical Association. 1943 meeting postponed indefinitely.

South Dakota Veterinary Medical Association. Meetings postponed for the duration.

Virginia Veterinary Medical Association. Summer meeting cancelled.

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## BIRTHS

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To Dr. (I.S.C., '36) and Mrs. W. C. Glenney, Elgin, Ill., a son, June 13, 1943.

To Dr. (Tex., '42) and Mrs. Harold Shanzer, 738 High St., Newark, N. J., a son, Kenneth Mark, Apr. 27, 1943.

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## MARRIAGES

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Dr. Jos. T. Stearns (A.P.I., '43), La Grange, Ky., to Winnifred Brock of Dothan, Ala., June 20, 1943.

Capt. Winston H. Tornow (Colo., '41), Maxton, N. Car., to Martha Jane McNair of Laurinburg, N. Car., May 1, 1943.

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## DEATHS

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Dwight G. Bacon (I.S.C.), 25 years old, Cedar Falls, Iowa, died June 22, 1943. Born in Oklahoma City, Okla., Lt. Bacon had lived in Cedar Falls since childhood and had practiced there with his father, L. F. Bacon, before entering the Army in January, 1942. He was killed in a plane crash in California.

Frank A. Bellar (C.V.C., '10), Belmont Park, N. Y., died Dec. 23, 1942, of a heart attack. Dr. Bellar had specialized in the care of Thoroughbreds.

A. L. Fosse (Ont., '97), 69 years old, Cambridge, Wis., died June 25, 1943. He had practiced at Sun Prairie and Cambridge for many years.

Frederick W. Hansen, Wittenberg, Wis., died Apr. 21, 1943, at Wausau, Wis. This was erroneously reported as the death of Fred W. Hansen of Saint Paul, Minn., in the June, 1943, issue of the JOURNAL.

Michael John O'Rourke (San Fran., '09), 61 years old, San Francisco, Calif., died June 24, 1943, in Los Angeles, while attending a meeting of the state association and of the state board of examiners. Dr. O'Rourke was a past president of the state association, a member of the Bay Counties Association, veterinarian to the State Racing Board, and state veterinary chairman of the P and A Service. He had just been elected alternate delegate to the House of Representatives. Dr. O'Rourke was born in England. He had practiced in San Francisco for thirty-five years. He joined the AVMA in 1911.

Maynard Rosenberger (I.S.C., '03), 63 years old, Tarzana, Calif., died June 11, 1943. He was born at Carroll, Iowa. After serving for some time on the veterinary faculty of the Washington State College and with the BAI in tick eradication, Dr. Rosenberger assisted in the formation of the Adohr Milk Farms, Inc., serving as vice-president and general manager for twenty years. During this time, he did much research work on tuberculosis and brucellosis. He had been a member of the AVMA since 1904.

# THE VETERINARY PROFESSION AND THE WAR

## Veterinarians Not to Be Declared "Available" for the Present

Because a sufficient number of veterinary officers has been obtained to meet present needs of the Army, state veterinary chairmen of the Procurement and Assignment Service have been directed to cease declaring veterinarians "available" for the time being. The following memorandum from the Officer Procurement Service applies:

15 June, 1943.

SUBJECT: Processing Applications of  
Veterinarians

TO: Officer Procurement Districts

1) This memorandum supplements the basic instructions on the above subject. See FT-34, 27 February '43, and FT-42, FT-47, FT-52.

2) As stated in paragraph 2, FT-52, 21 April '43, the Procurement and Assignment Service then notified state P and A veterinary chairmen not to declare "available" further veterinarians. Subsequently, 33 veterinarians were, in fact, declared available. On 10 June 1943 there were thirteen veterinarian cases "in process" or "in suspense" in district offices. The Procurement and Assignment Service has again, at the request of the Surgeon General, directed its state P and A veterinary chairmen to cease declaration as available of further veterinarians. For the time being, there is no general need for further veterinary officers in the Army.

3) District offices will return to state P and A veterinary chairmen any veterinarians hereafter declared available, with a reference to this field letter. Veterinary cases now in process or in suspense may be processed and forwarded in normal course to the Surgeon General.

4) It is the intention of the Surgeon General that veterinary cases additional to those mentioned above be processed only in the following categories:

a) Under a Form OPS-2 forwarded by the Surgeon General direct to Washington Headquarters of this Service.

b) In the case of an inducted veterina-

rian who is being processed for appointment through military channels.

For the Director:

S/EMMETT F. CONNELLY,

Colonel, A.U.S.,

Chief, Field Operations Branch.

## What the Newspapers Say

(Excerpts from Educational Publicity Material issued by the AVMA Public Relations Department.)

### Chicago (Ill.) News

(June 21, 1943)

Dog fanciers and animal welfare advocates today joined forces in opposition to a bill requiring annual anti-rabies inoculation for all dogs in Illinois. . .

Dr. J. G. Hardenbergh, executive secretary of the American Veterinary Medical Association, said his organization has not changed its policy since 1940. At that time, the group recommended that compulsory vaccination should not be relied on for solution of the rabies problem. . .

### Pensacola (Fla.) News

(May 28, 1943)

By their ["men in white" of the livestock industry] efforts to cut down mortality in cattle, hogs, and sheep, they are saving more of the animals for the slaughter house and then for meat eaters. Keeping alive only one-half of the animals which die each year in the United States from diseases which are preventable would more than supply the additional meats and animal food products estimated to be necessary to meet the country's requirements under war conditions, according to W. W. Dimock, president of the American Veterinary Medical Association. . .—Wall Street Journal.

### Sacramento (Calif.) Bee

(May 31, 1943)

#### Cattle and Tuberculosis

In the United States, practically all cattle are now free from tuberculosis. In Great Britain, Dr. W. R. Wooldridge, president of the National Veterinary Medical Association, estimates that 60 per cent of dairy cattle are infected.

# *Encephalomyelitis*

## *Season*

## *Is Here*

July, August and September are the months when serious outbreaks of Equine Encephalomyelitis have occurred. The danger of an outbreak is not over until cold weather.

If an extensive outbreak should occur this year, will it catch a large proportion of the horses in your community susceptible because of not having been vaccinated? If so, it will be both a local and a national calamity.

A serious outbreak would place such a demand upon the time of practitioners that it could not be met without neglecting other important work.

There are many sound reasons why preseasonal vaccination should be done—There are no sound reasons why it should not be done.

To urge farmers to have their horses vaccinated against encephalomyelitis is genuine cooperation in our war effort.

**ASHE LOCKHART**

*"Producers of Better Biologicals  
for Graduate Veterinarians."*

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Canada—Canada Representatives, Ltd.

Kansas City, Missouri

193-195 Spadina Avenue, Toronto, Ontario

YESTERDAY'S HEIFERS ARE TODAY'S PRODUCERS

Immunization of heifer calves against Bang's disease means added surety of replacements for future years—one more essential safeguard against the most costly of all cattle maladies.

**Jen-Sal**

## Brucella Abortus Vaccine

Prepared from smooth colonies of U. S. B. A. I. strain No. 19 . . . processed throughout and applied in alkali-free glass—represents the latest refinement in scientific biological products manufacture. And, in keeping with sound principles of disease control, sale of this vaccine is confined to properly qualified veterinarians.



**Jen-Sal** BRUCELLA ABORTUS VACCINE is available in single vials of 6 cc., in packages of six vials and in packages of twelve.



JOHNSEN-SALSBERY LABORATORIES, INC., KANSAS CITY, MISSOURI